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Attitudes and Self-efficacy of Swimming Coaches towards the Inclusion of Swimmers with Autism Spectrum Disorder

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Abstract

The purpose of this study was to investigate the attitudes and self-efficacy of swimming coaches regarding the inclusion of swimmers with autism spectrum disorder (ASD). The sample consisted of 150 Greek swimming coaches with an average age of 29.58 years. Each participant completed the Swimming Coaches Attitudes towards Inclusion Questionnaire for perceptions assessment and the Biddle and Goudas (1997) self-efficacy questionnaire. The statistical analysis used SPSS 27 to calculate Cronbach's alpha, Pearson product-moment correlations, independent t-tests, and ANOVA. The findings of the study showed that the swimming coaches expressed positive attitudes and a high percentage of perceived self-efficacy towards the inclusion of athletes with ASD in the general swimming team. Attitudes were not associated with self-efficacy. Training in adapted physical education and the geographical distribution seemed to influence attitudes whereas gender and coaching experience influenced self-efficacy. Overall, swimming coaches expressed positive attitudes towards the inclusion of swimmers with ASD in their general team and considered their teaching effective.

Keywords: autistic spectrum disorder, inclusion, swimming, attitudes, self-efficacy

Introduction

The concept of inclusion first emerged in the provision of education to students with disabilities in a typical classroom. The term, disability, being likened to an 'umbrella' of conditions as it covers impairments, deficits, and limitations while indicating the negative aspect of an individual's interaction with environmental and personal factors (WHO, 2011). Subsequently, the concept of inclusion was extended to other contexts such as community, work, culture, and sports (Kokaridas, 2021). The principles of acceptance and equal support as well as a sense of belonging characterize inclusion (Sherrill, 2004) which is, however, hampered by the lack of resources, accessibility, political and social support in sport, and social levels (Bossink, van der Putten & Vlaskamp, 2017).

In recent decades there has been a strong research interest in the inclusion of children with disabilities in the school environment including children with autism spectrum disorder. Autism spectrum disorder (ASD), as a form of disability, is classified as a neurodevelopmental disorder with individuals with ASD characterized by significant deficits in communication and interaction with the social environment, the occurrence of repetitive and stereotypical behaviors, a lack of interests, and lack of motivation to participate in physical activities (APA, 2013).

To date, research has mainly examined the attitudes of teachers, including physical education teachers, towards the co-education of typically developing pupils and pupils with disabilities and/or special educational needs

(Combs, Elliott & Whipple, 2010; Doukeridou, et al., 2011; Jeong & Block, 2011; Morley et al., 2021; Papadopoulou, Kokaridas, Papanikolaou & Patsiaouras, 2004; Vaporidi, Kokaridas & Krommidas, 2005), where the level of disability severity (Alquraini, 2012; Hasting & Oakford, 2003), the existence of a person with a disability in the family environment (Alquraini, 2012), experience (Alquraini, 2012; Batsiou, Bebetos, Panteli & Antoniou, 2008; Doukeridou et al., 2011; Garrad, Rayner & Pedersen, 2019), and cognitive training were shown to be the characteristics most strongly associated with teachers' attitudes (Avramidis & Kalyva, 2007; Mdikana, Ntshangase & Mayekiso, 2007; Papadopoulou et al., 2004; Schmidt & Vrhovnik, 2015; Vaporidi et al., 2005).

In the field of coaching, less research has been conducted on the attitudes of coaches of different sports with some studies referring to coaches' attitudes towards athletes with intellectual disabilities (Bishop, Rizzo & Silva, 1999; Kozub & Porretta, 1998; Rizzo, Bishop & Tobar, 1997), as well as with attention deficit hyperactivity disorder (Beyer, Flores & Vargas-Tonsing, 2008), where it was shown that as coaches' perceptual ability and experience increased, so did their intentions and positive attitudes towards teaching athletes with disabilities.

With regards to swimming, Conatser & Block (2001) showed that academic knowledge and experience of 155 swimming coaches was associated with feelings of competence and positive attitudes towards swimmers with disabilities. Furthermore, Conatser, Block and Lepore (2000) in a sample of 82 swimming coaches highlighted the importance of training for more favorable attitudes towards swimmers with mild disabilities compared to swimmers with severe disabilities. Similar results were also observed in a subsequent study (Hammond, Young & Konjarski, 2014) which investigated the attitudes of 52 swimming coaches with and without experience in inclusive swimming programs, regarding the inclusion of swimmers with intellectual disabilities. Their results showed that more experienced coaches displayed more positive attitudes due to their higher perceived confidence coaching athletes with disabilities.

After reviewing the literature, it seems that a lack of similar studies exists when investigating the attitudes and perceived self-efficacy of swimming coaches to teach swimmers with ASD even though the training of athletes with and without ASD in the same training environment is a contemporary reality that more and more swimming coaches are experiencing. According to planned behavior theory, behavior is related to the intention of the individual who exhibits such behavior and intention is based on the individual's attitude towards social norms (Ajzen, 1985). Therefore, according to this theory if swimming coaches intend to include and teach swimmers with ASD, it is expected that

they will express a positive attitude and behavior towards these individuals during swimming instruction.

Bandura's (1997) theory of self-efficacy as a form of self-confidence which relates to individuals' personal perceptions of their abilities to produce effective projects, provides the theoretical background to understand this concept and its measurement. Self-efficacy theory has been successfully studied in physical education teachers (Alhumaid, Khoo & Bastos, 2020; Hutzler & Barak, 2017; Hutzler, Zach & Gafni, 2005; Koh, 2021; Kwon & Block, 2017; Zach, Harari & Harari, 2012), but not to swimming coaches who teach in classes that consist of trainees with and without disabilities.

Thus, the purpose of this study was to examine the attitudes and self-efficacy of swimming coaches towards the inclusion of swimmers with autism spectrum disorder. The study intends to record for the first time the attitudes and perceived self-efficacy of swimming coaches towards the prospect of accepting and including trainees with ASD in a swimming team anticipating the drawing of useful conclusions. The research questions that guided this study were as follows:

1. What are swimming coaches' attitudes about the inclusion of swimmers with autism spectrum disorder?
2. Do significant correlations exist among attitudes and self-efficacy of swimming coaches?

Method

Sample

The sample consisted of 150 participants (108 females and 42 males), all Greek swimming coaches with a mean age of 29.58 years. Of the total 150 participants, 103 were graduates of the Department of Physical Education and Sport Science with swimming specialty and 47 were former swimming athletes.

Instruments

The questionnaires used in this study, included:

Swimming Coaches Attitudes Towards Inclusion Questionnaire

The Swimming Coaches Attitudes Towards Inclusion questionnaire (Hammond et al., 2014) consists of 22 questions concerning athletes with intellectual disability. In this study, the term cognitive disability was replaced by the term ASD. The 22 items of the questionnaire assess scores for the factors of i) personal belief of swimming coaches towards the inclusion of swimmers with ASD in typical swimming teams, ii) perceived self-confidence of swimming coaches in teaching athletes with ASD and iii) external influences which refer to the external factors that influence the decision of the coach to accept participants with ASD in his/her swimming team. The participants responded on a four-point Likert scale anchored by strongly agree (4 points) and strongly disagree (1 point) for each item.

Physical Education Teacher Efficacy Questionnaire

The Physical Education Teacher Efficacy questionnaire (Biddle & Goudas, 1997) comprised 14 questions that measure self-efficacy. Responses were given on a seven-point Likert scale (1= Not at all sure to 7= Absolutely sure) and the term 'students' was replaced by the term athletes.

Procedures

The collection of the responding questionnaires answered by the swimming coaches was done either through a face-to-face meeting of the researcher with the coaches following an initial telephone contact with the swimming clubs, or via email with both questionnaires designed in Google Forms and sent to swimming coaches, plus providing a 2 weeks' time period for swimming coaches to return the questionnaires answered. Furthermore, all participants were informed about the procedures and the purpose of the study; they signed a consent form prior completion of the questionnaires; and they were ensured confidentiality of results, their anonymous and voluntary participation and their free choice to withdraw from the study at any time they may wish to do so. All research procedures were previously approved by the Bioethics Committee of the Department of Physical Education and Sports Science (DPESS) of the Aristotle University of Thessaloniki (approval number: 72/2021).

Statistical Analysis

Statistical analysis included the use of the Statistical Package of Social Sciences (SPSS 27.0). Cronbach's co-efficient alpha was used to determine internal consistency of the Swimming Coaches Attitudes Towards Inclusion questionnaire and the Pearson product-moment correlation (r) analysis was included to investigate the relationships among variables of the two questionnaires. We calculated t-tests for independent samples to determine whether attitudes and self-efficacy of the swimming coaches differed significantly according to gender, training in adapted physical education, previous coaching experience with athletes with disabilities, and geographical location of the swimming clubs (capital or province), while analysis of variance (ANOVA) was used to identify significant differences in relation to years of coaching experience and age of swimming coaches.

Results

Cronbach's α analysis indicated internal consistency ranging from very high ($\alpha = .991$ for 'self-efficacy') and high ($\alpha = .833$ $\alpha = .855$ for 'belief' and 'self-confidence' respectively) to acceptable ($\alpha = .645$ for 'external influence') for the modified. Swimming Coaches Attitudes Towards Inclusion questionnaire (Hammond et al, 2014). Furthermore, Pearson (r) product-moment correlation analyses showed significant positive correlations between all factors except self-efficacy (Table 1).

Table 1*Internal consistency and factor correlations*

	N	□ Cronbach	Self- confidence	External Influence	Self-efficacy
Personal belief	150	.833	.439**	.437**	-.133
Self-confidence	150	.855		.382**	.039
External Influence	150	.645			-.081
Self-efficacy	150	.991			

Between male and female swimming coaches, statistically significant differences were noticed in 'self-confidence' and 'self-efficacy' factors, with men expressing greater self-confidence and women exhibiting greater self-efficacy to teach the sport of swimming to children with ASD (Table 2).

Table 2*Gender differences*

Factors	Gender	N	M	S.T.	t	df	p
Self- confidence	Males	42	3.01	.56	.62	148	.05
	Females	108	2.93	.73	.70	148	
Self-efficacy	Males	42	5.00	1.84	- 1.33	148	.004
	Females	108	5.40	1.53	- 1.22	148	

Also, statistically significant differences were noted in 'self-confidence' and 'self-efficacy' factors according to previous coaching experience with athletes with disabilities, with previously experienced coaches appearing more confident and efficient to teach swimmers with disabilities in their swimming team (Table 3).

Table 3*Coaching experience differences with athletes with disabilities*

Factors	Previous experience with athletes with disability	N	M	S.T.	t	df	p
Self- confidence	Yes	86	3.16	.67	4.75	148	.042
	No	64	2.66	.58	4.85	148	
Self- efficacy	Yes	86	5.18	1.7	-1.0	148	.023
	No	64	5.44	1.53	-1.02	148	

In addition, coaches with previous experience with ASD athletes perceived themselves as more confident to teach swimmers with ASD in their group compared to coaches without experience (Table 4).

Table 4*Coaching experience differences with ASD swimmers*

Factors	Previous experience with ASD athletes	N	M	S.T.	T	df	p
Self-confidence	Yes	86	3.07	.68	3.58	148	.048
	No	64	2.64	.58	3.85	148	

Based on geographical location (capital or province) of the swimming clubs, coaches from the rest of the Greek regions expressed more positive attitudes towards the benefits of inclusion of swimmers with ASD and appeared more self-confident to teach swimmers with ASD in their swimming teams compared to coaches working in Attiki (Athens) region (Table 5).

Table 5*Geographical location differences*

Factors	Geographical location	N	M	S.T.	t	df	p
Personal belief	Capital	113	2.76	.46	-2.61	148	.010
	Province	37	2.98	.44	-2.67	148	
Self-confidence	Capital	113	2.87	.67	-2.51	148	.013
	Province	37	3.19	.65	-2.56	148	

As for previous knowledge in adapted physical education (PE), coaches with previous knowledge and training in adapted PE expressed more positive attitudes, felt more confident to teach swimmers with ASD, and placed more value on the opinion of 'significant others' compared to those with no previous knowledge (Table 6).

Table 6*Coach differences regarding previous knowledge in adapted physical education*

Factors	Training	N	M	S.T.	t	df	p
Personal belief	Yes	66	2.9	.45	2.1	148	.037
	No	84	2.74	.46	2.1	148	
Self-confidence	Yes	66	3.27	.57	5.58	148	.00
	No	84	2.7	.67	5.68	148	
External Influence	Yes	66	2.67	.54	1.99	148	.049
	No	84	2.49	.55	1.99	148	

Finally, age and years of total coaching experience of the swimming coaches yielded similar statistically significant differences in 'self-confidence'

factor, with older and more experienced coaches exhibiting more confidence to teach swimmers with ASD (Table 7; Table 8).

Table 7

Age differences

Factors	21-31		32-41		42-52		F	p
	M.O.	T.A.	M.O.	T.A.	M.O.	T.A.		
Self-confidence	2.87	.44	2.87	.57	2.93	.45	3.01	.043

Table 8

Total coaching experience differences

Factors	1-10		11-21		22-35		F	p
	M.O.	T.A.	M.O.	T.A.	M.O.	T.A.		
Self-confidence	2.89	.66	2.94	.72	3.36	.58	3	.043

Discussion

The purpose of this study was to investigate the attitudes and self-efficacy of swimming coaches towards the inclusion of swimmers with ASD. As findings showed, participant swimming coaches in this study expressed positive attitudes and a high level of perceived self-efficacy towards the inclusion of athletes with ASD in their typical swimming team.

In addition, the positive correlations between all factors except self-efficacy showed that the extent to which swimming coaches perceived themselves as effective in teaching children with ASD was not related to the factors that shaped coaches' attitudes toward teaching children with ASD. This finding was not in agreement with those of other studies (Hutzler et al., 2005; Savolainen, Engelbrecht, Nel & Malinen, 2012) in which teachers' self-efficacy in schools was related to their attitudes towards inclusion of students with disabilities, probably because inclusion in school settings in other studies was a broader term that did not include only physical education classes whereas inclusion in swimming settings yielded more specific responses. Furthermore, ASD as its name implies, describes a 'spectrum' of functioning level that differs among students in schools as compared to swimming settings where many youngsters with ASD mostly exhibit a higher functionality level with a typical IQ; thus, swimming coaches often perceive these children as equally effective as their typically developing peers.

Results also showed that male coaches exhibited higher levels of self-confidence than female coaches since men may be more likely to take the initiative to accomplish more difficult tasks as head coaches. On the other hand, women seemed to perceive themselves as having greater self-efficacy to teach swimming to children with ASD compared to men, considering that the majority of women continue to be involved in swimming academies while men turn mostly towards competitive swimming during their coaching careers. In the

study by Hofman and Kilimo (2014) self-efficacy was not correlated with the gender of the teachers; nevertheless, their study was conducted in school settings rather than with sport teams.

Previous coaching experience with children with disabilities appeared to have a positive effect on the confidence and self-efficacy that experienced coaches exhibited to teach athletes with disabilities compared to those without prior experience in disability issues. This finding agreed with the findings of the Hutzler and Barak (2017) study that had examined the self-efficacy of physical education teachers to include students with cerebral palsy. The findings also agreed with the study by Hofman and Kilimo (2014) who identified work experience of physical educators as a positive predictor of their self-efficacy. When we examined previous coaching experience with ASD, the findings showed that coaches with previous experience felt more confident to teach swimmers with ASD compared to inexperienced ones. No difference was noted in their perceived self-efficacy. Most probably prior teaching experience of coaches with ASD swimmers contributed to a greater understanding of the difficulties that may have arisen during swimming sessions to the extent that coaches with previous experience understood that teaching athletes with ASD would not always be effective.

Geographical location (capital or province) of the swimming clubs seemed to affect participants' attitudes since coaches from the rest of the Greek region expressed more positive attitudes towards the benefits of inclusion of swimmers with ASD and appeared more self-confident to teach swimmers with ASD in their swimming teams compared to coaches working in the Attiki (Athens) region. This difference can be explained in terms of the lower number of children with ASD participating in swimming teams across the Greek region compared to Athens. Thus, the different ratio of swimmers with and without ASD who participate in typical swimming teams of the capital and provincial regions may have lead coaches to believe that they can teach more effectively swimmers with ASD outside of the capital areas.

Previous knowledge in adapted physical education also emerged as a feature that contributes to the development of more favorable attitudes towards inclusion of athletes with ASD since swimming coaches with previous knowledge and training in adapted PE expressed more positive attitudes, felt more confident to teach swimmers with ASD, and placed more value on the opinion of significant others compared to those with no previous knowledge. This finding agreed with several studies conducted in school settings (Al-Zyoudi, 2006; Vaporidi et al., 2005; Combs et al., 2010; Doulkeridou et al., 2011; Garrad et al., 2019; Mdkana et al., 2007; Papadopoulou et al., 2004; Rose, Kaikkonen & Koiv, 2007; Schmidt & Vrhovnik, 2015) and the swimming environment (Conatser & Block, 2001; Conatser et al., 2000). A positive relationship between training in adapted physical education and self-confidence

was also shown by the Avramidis and Norwich (2002) study which emphasized that self-confidence of teachers decreases proportionally with the level of severity of students with disabilities.

Finally, years of coaching experience and age of the participants seemed to similarly influence their self-confidence since both go hand in hand with older and more experienced coaches exhibiting greater confidence in teaching swimmers with ASD. In other words, the years of continuous interaction with these athletes seemed to contribute over time to the development of communication and understanding of their behavior, resulting in a more successful coaching management during swimming instruction.

Limitations

The present study is the first of its kind in Greece and elsewhere; therefore, it was limited by its investigative nature. Thus, future research with a larger sample of swimming coaches from different countries is needed to further generalize results and locate all factors that shape the attitudes and self-efficacy of coaches toward the inclusion of swimmers with ASD and other disabilities also. Future research could also focus on the impact of the infrastructure and equipment available in swimming pools on coaches' perceptions. Nevertheless, initial results presented in this study appear positive and promising.

Conclusions

Overall, the investigation of attitudes and self-efficacy of swimming coaches towards the inclusion of swimmers with ASD of this study is promising, since participants expressed positive attitudes and a high rate of perceived self-efficacy towards the inclusion of athletes with ASD in their typical swimming team. Furthermore, coaches' positive attitudes were not correlated with their perceived self-efficacy in teaching children with ASD. Moreover, gender, age, previous coaching experience with children with ASD and disabilities in general, and capital or province location of the swimming clubs were factors that influenced attitudes and self-efficacy perceptions of participant coaches, whereas previous adapted physical education knowledge and training significantly influenced all factors that shaped coaches' attitudes. This finding highlighted the importance of expertise in creating positive attitudes towards the inclusion of swimmers with ASD.

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