ENHANCING EMPATHY IN CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD) THROUGH SHERBORNE DEVELOPMENTAL MOVEMENT (SDM)

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ABSTRACT
Introduction: Empathy is a fundamental social skill that supports communication, relationships, and social inclusion. Children and adolescents with Autism Spectrum Disorder (ASD) often present difficulties in recognizing and responding to the emotions of others, which can limit their social interactions and peer relationships. Recent interventions highlight the need for approaches that foster empathetic skills and promote social integration. Sherborne Developmental Movement (SDM), a structured movement-based program, may provide such opportunities through physical interaction and experiential learning.
Methodology: An experimental design was implemented with 15 participants, aged 7.5 to 16.1, recruited from therapy and creative activity centers in the Attica region of Greece. Participants were randomly allocated to an experimental group (N=8) and a control group (N=7). The experimental group received an eight-week SDM program, while the control group continued with their regular activities. Empathy was assessed pre- and post-intervention using the Index of Empathy for Children and Adolescents (Bryant, 1982).
Results: Analysis revealed that participants in the experimental group demonstrated significant improvements in empathy scores compared to the control group. Gains were evident across both cognitive and affective components of empathy, indicating the positive impact of Sherborne Developmental Movement.
Conclusion: The study provides evidence that SDM can effectively enhance empathy in children and adolescents with ASD. Integrating SDM into adapted physical education and therapeutic programs may support both social and emotional development, thereby promoting greater inclusion in educational and community settings.

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INTRODUCTION

Empathy is defined as the individual's ability to recognize and represent the internal mental states of others, which corresponds to the cognitive dimension of the concept (Batson et al., 1987). This cognitive function provides the basis for the activation of the emotional empathic response, which reflects the affective dimension of empathy. Overall, empathy consists of the ability to attribute mental states both to oneself and to others, and to respond with an appropriate emotional reaction to the mental states of others (Baron-Cohen & Wheelwright, 2004). It has also been defined as the capacity to perceive and understand another person's emotional state and to respond accordingly to the emotions of others (Rieffe et al., 2010). Jolliffe and Farrington (2006) as well as Zahn-Waxler et al. (1992) argued that empathy represents a key motivational force behind prosocial behaviors that promote group cohesion and cooperation. Deficits in empathy have been associated with the development of externalizing or problematic behaviors (Jolliffe & Farrington, 2006; LeSure-Lester, 2000; Miller & Eisenberg, 1988), while empathy is considered a crucial factor in children's social behavior and in the relationships they form with their peers (Saarni, 1999; Strayer, 1987).

Individuals with Autism Spectrum Disorder (ASD) display atypical empathic responses, which limit their communication and social interactions (Harmsen, 2019). These difficulties are manifested through deficits in attributing, recognizing, and understanding the mental states of others, as well as in exhibiting appropriate emotional and social behavior in specific contexts

(Gillberg, 1992; Baron-Cohen et al., 1999; Hirvela & Helkama, 2011; Jaarsma, 2013). Children with Asperger's Syndrome or High-Functioning Autism, in particular, experience challenges in applying social rules of behavior and adapting to the demands of social interaction, which further burden their peer relationships (Gillberg, 1992; Baron-Cohen et al., 1999).

Harmsen (2019) noted that recent diagnostic and therapeutic interventions aim to improve social knowledge, emotion recognition, and empathic responsiveness. Sissons (2022) and Liao et al. (2014) highlight that embodied and movement-based interventions can enhance emotional understanding and social functioning in children with ASD. Improvements have been observed in behavior regulation and social interaction. Likewise, Konieczna et al. (2010) support body-oriented methods, such as the Sherborne Developmental Movement (SDM), showing particularly positive effects on social and psychomotor development. Based on the above, it can be argued that such interventions are expected to significantly enhance communication and facilitate social interactions, thereby promoting social integration and the quality of life of individuals with ASD.

Aim and Objectives

The aim of the present study was to examine the impact of the Sherborne Developmental Movement (SDM) method on empathy in children and adolescents with ASD. The objectives were: a) to evaluate differences in empathy levels between participants who engaged in the SDM program and their peers who did not, and b) to explore changes across both cognitive and affective components of empathy. The independent variables were the type of intervention (with or without the application of the method) and time (pre- and post-intervention), while the dependent variable was empathy. It was hypothesized that participation in the SDM program would lead to significantly positive improvements in empathy compared to no intervention.

METHODOLOGY

A total of 15 children and adolescents with ASD aged between 7.5 and 16.1 years (M = 11.26, SD = 3.13) were recruited and randomly assigned to the control and intervention groups. The intervention group participated in an eight-week program, with one 60-minute session per week. Empathy was measured pre- and post-intervention, and for the purposes of the study, it was assessed using the *Index of Empathy for Children and Adolescents* (Bryant, 1982) (EMP). Given the participants' difficulties in completing the self-report questionnaire, the EMP was completed by therapists and parents (proxy reports) in the presence of the researcher, to ensure consistent administration and reduce potential subjective bias.

A) The Greek adaptation of the *Index of Empathy for Children and Adolescents* (EMP; Bryant, 1982; Tsitsas et al., 2012) was utilized in the present study. The instrument is a self-report questionnaire comprising 22 items, which evaluate children's and adolescents' ability to display emotional empathy in response to others' emotional states. Participants answer each item with "yes" or "no", depending on whether the statement corresponds to their own experience. Certain items (e.g., 1, 4, 5, 6, 7, 8, 11, 12, 13, 14, 19) are scored positively, indicating higher empathy, whereas negatively phrased items (e.g., 2, 3, 9, 10, 15, 16, 17, 18, 20, 21, 22) are reverse-coded. Each response is scored on a binary scale (0 = no, 1 = yes), and total empathy scores are obtained by summing all responses, yielding a possible range of 0 to 22. Higher totals reflect greater empathic ability. The instrument demonstrated acceptable internal consistency, with *Cronbach's α* reported at .65 (Tsitsas et al, 2012).

Each SDM session was structured according to the core principles of the Sherborne Developmental Movement framework and incorporated activities fostering body and spatial awareness, collaboration, and social engagement. The fidelity of implementation was ensured through detailed session records and continuous researcher supervision.

RESULTS

Participants' levels of empathy were assessed using the *Index of Empathy for Children and Adolescents* (EMP; Bryant, 1982), which was completed by both therapists and parents. The descriptive statistics for the ASD group are presented in Table 1.

Table 1. *Descriptive statistics of participants with ASD (N=15)*

Variable	*M*	*SD*
EMP	12.87	3.78

SPSS v23 was used for statistical analysis. The 2X2 factorial ANOVA was conducted to examine the interaction effect between group (experimental, control) and time (pre-test, post-test) on the EMP for children and adolescents with ASD. The results were significant for EMP ($F = 37.095$, $p = .001$, $\eta^2 = .740$). Regarding the EMP, the t parameter estimates test indicated that the interaction was due to a reversal of differences between the first measurement ($t = -1.115$, $p = .285$) and the second measurement ($t = 2.037$, $p = .063$). The overall results are presented in Figure 1 and Table 2.

Figure 1 illustrates the effect of the Sherborne Developmental Movement program on empathy levels. As shown, participants in the experimental group exhibited a marked increase in empathy scores following the intervention, while the control group's scores remained relatively stable.

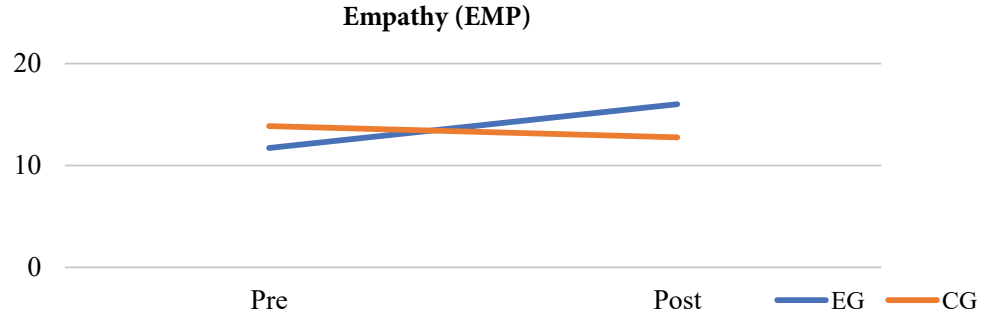

Figure 1. *Effect of the Sherborne program on empathy (EMP) in children and adolescents with and without ASD*

Table 2. *Comparison of the Experimental Group (EG) and the Control Group (CG) on the empathy measure (EMP)*

	EXPERIMENTAL GROUP *N* = 7		CONTROL GROUP *N* = 8	
Empathy (EMP)	***M***	***SD***	***M***	***SD***
Pre test	11.71	2.14	13.88	4.70
Post test	16.00	1.73	12.75	3.88

DISCUSSION

The findings are in line with previous research highlighting the positive impact of Sherborne Developmental Movement (SDM) on children's empathy. Harmsen (2019) noted that individuals with ASD exhibit atypical empathic responses that hinder communication and social interactions, with variations in empathy being influenced by gender, age, intellectual functioning, and severity of the disorder. This knowledge has informed the development of improved diagnostic and therapeutic approaches aimed at enhancing social knowledge, emotional recognition, and empathic responsiveness in individuals with ASD.

Regarding the research hypothesis, significant differences were found between children and adolescents with ASD who participated in the Sherborne intervention and those in the control group in terms of empathy. The aim of this study was to examine the impact of the Sherborne program on empathy in children and adolescents with ASD, by evaluating the interaction between group (experimental, control) and time of measurement (pre-test, post-test) on the EMP. More specifically, the analysis focused on participants' questionnaire responses on empathy, complemented by reports provided by parents and therapists.

A large body of evidence suggests that various programs and interventions can positively influence the development of social and emotional skills in children with ASD, including empathy. For instance, such programs have been shown to

support children in connecting with their bodies, developing coping mechanisms, and exhibiting calmer behavior (Ehleringer, 2010). Similarly, the DIR-Floortime program has demonstrated benefits in social interaction, communication, and daily living skills, contributing to improvements in emotional functioning (Liao et al., 2014). Other research has indicated that interventions can produce moderate to large gains in social and maladaptive behavior (Virues-Ortega et al., 2013; Sissons et al., 2022). In the same vein, psychomotor and neuro-psychomotor training programs have proven effective in enhancing emotional well-being, self-confidence, motivation, social behavior, and cognitive functioning in children with ASD (Liu & ElGarhy, 2014; Caliendo et al., 2021). Furthermore, physical activity has been linked to multiple benefits, including improved physiological, cognitive, and behavioral outcomes (Sorensen & Zarrett, 2014). Targeted physical activity interventions have additionally demonstrated moderate to large positive effects on manipulative skills, motor functioning, physical fitness, and social interaction (Healy et al., 2018). Taken together, these findings highlight the importance of multidimensional interventions for strengthening social and emotional functioning, which in turn contributes to the cultivation of empathy in children with ASD.

SDM has emerged as an effective intervention that significantly fosters children's emotional and social development, both of which are closely related to empathy. Mousouraki et al. (2018) showed that implementing SDM in school settings enhanced skills such as emotional regulation, self-control, and empathy, particularly among girls in the experimental group. Similarly, Zwolińska et al. (2014) reported that participation of children with moderate intellectual disabilities in SDM programs promoted progress in cognitive, social, and emotional development, with stronger effects observed when caregivers were actively involved. In addition, Wieczorek (2009) found that children with Down syndrome who participated in Sherborne programs improved across physical, emotional, social, and cognitive domains, with the most substantial changes noted in social functioning and emotional regulation. Collectively, these findings underscore the potential of Sherborne as a valuable method for fostering empathy, supporting social inclusion, and enhancing psychosocial adaptation in children with a range of developmental difficulties.

Although the results of this study are encouraging, some limitations should be taken into account. The small number of participants and the wide age range may have affected the consistency of the findings. In addition, empathy was evaluated through questionnaires completed by therapists and parents, which may have introduced some degree of subjectivity, even though the researcher aimed to keep the process consistent. Therefore, these results should be interpreted with caution. Future studies with more participants, similar age groups, and longer programs are needed to confirm and extend the present findings.

CONCLUSION

The present study demonstrated that the implementation of the Sherborne method can substantially enhance empathy in children and adolescents with ASD. The results confirm the positive impact of interventions designed to strengthen social and emotional skills, while also highlighting the importance of systematic application within both educational and therapeutic settings. The study reinforces previous findings and underscores the usefulness of Sherborne as an intervention tool capable of promoting social interaction, emotion recognition, and psychosocial adjustment in children with ASD. Nevertheless, further research involving larger and more heterogeneous samples is required to confirm the generalizability of the findings and to explore the long-term effectiveness of the intervention.

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