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Research Article

Effects of a Psychomotor Intervention on Water in the Quality of Life of Adults with Intellectual and Developmental Disabilities

Abstract

Improving the quality of life (QOL) of persons with intellectual and developmental disabilities (IDD) is one of the goals of supports providers. This study's goal is to analyze the contribution of a psychomotor intervention in water on the QOL and aquatic skills of adults with IDD. All 29 participants, four males and twenty-five females, with ages ranging from 19 to 45 years old (28.55 ± 5.49), diagnosed with "mild" and "moderate" IDD at the Occupational Activity Center (OAC), were evaluated by the Portuguese version of Personal Outcomes Scale and the *Ficha de Avaliação do Comportamento em Meio Aquático* in three different moments (baseline, final and retention) A Psychomotor Program Intervention in water was implemented during four months, of three 50 minute sessions per week. Findings showed benefits of psychomotor intervention in the promotion of some QOL domains and aquatic skills of adults with IDD. Differences were found on QOL domains and aquatic skills. Implications for future research and psychomotor practice are discussed.

Introduction

New models and paradigms are emerging within the intellectual disability (ID) field. Support provider organizations are rethinking how resources can be used to develop effective services and to support and enhance personal outcomes [1]. In Portugal, one of the services usually provided by institutions and organizations to persons with intellectual disability is psychomotor therapy (PMT) This intervention can provide the framework in which individualized therapeutic objectives can be achieved [2].

The PMT intervention with people exhibiting ID aims to empower the person, promoting their psychomotor development and independent functioning, targeting for an interaction of quality between the person and his/her environment [3]. In PMT, movement is used as a therapeutic tool and may be more action or experiences centered with an active participation in a wide range of movement tasks within a holistic view of the person [4]. The PMT is not only focused in the final product, but instead in all process [5]. Psychomotor therapists, as others therapists, must have a global comprehension of human independent functioning relevant models (Luckasson & Schalock, 2013), supports and quality of life [6] for best practices.

On the other hand, PMT intervention in water implies a set of motor and cognitive adaptations seeking to stimulate and develop the learning skills [7], with socio-emotional benefits [8-10]. The PMT intervention aims to create opportunities, develop skills and change rules and values in a longitudinal view throughout the individual's life, to increase all persons' QOL [3], including people with intellectual disability. The QOL conceptual framework involves a 3 higher-order constructs (factors) based on eight domains and its indicators [11]: personal development (education and personal skills, self-determination and power of choice/decision), social participation (interpersonal relations, social inclusion and rights, support system) and the well-being (emotional, physical and material)

Saviani-Zeoti & Petean (2008) [12] evaluated 15 adults (ages over 20 years-old) with intellectual disability, 8 males and 7 females and their respective care takers with the WHOQOL-BREF scale, comparing the satisfaction' indexes of both. Findings showed that the participants with "mild" ID are able to express about their own life, recognizing if they were (or not) satisfied. The relationship between supports, strategy and environmental factors in QOL is also supported in literature [13,14].

Stevens, Caputo, Fuller, and Morgan (2008) [15] examined the relation between physical activity levels and the QOL of 62 participants, over 18 years-old, 32 males and 30 females, with spine cord injury and showed a positive relation between both constructs. Nevertheless, the authors emphasized the need of more attention to the intervention in this area. Blick, Saad, Goreczny, Roman and Soresen (2015) [16] also analyzed the impact of physical activity on QOL of persons with and without an active lifestyle, between 11 and 92 years (49 ± 16.4) and concluded that the individuals that engage in physical activity regularly show better indexes of personal, social and emotional satisfaction.

Similar findings were found with a sample of 579 adults (25 ± 11.9) athletes with IDD [17], and their families that answered a survey (self-report and report of others) Interaction between participants with IDD and their families was one of the main benefits, among others (e.g., social, motor and affective) Furthermore, the benefits of interventions in aquatic environment are well documented in the literature [9,10,18].

One of strengths of previous studies was the consideration of subjective perspectives of the participants with IDD vs. using only exclusively the opinion of caregivers [12,19], enhancing self-determination and legal capacity to decide about their own life.

Due to the emergent need for evidence-based approaches, national research in PMT is focused not only in instruments' validation [20], but also in interventions' effectiveness evaluation [21]. The importance of personal outcomes and personal well-being of persons with IDD has been recognized [22-24], as well the provision of supports [25]. In order to evaluate the effectiveness of psychomotor interventions, with different populations and within diversified settings, and to develop more evidence-based treatment programs, much research still needs to be done [2]. Therefore, our main goal was to analyze the effects of a psychomotor intervention in water to improve both the QOL and aquatic skills of adults with IDD, through an analysis of differences (improvement) between PMT' *pre* and *post* intervention. Further, it will be compared QOL' perceptions of participants with intellectual disability and their caregivers after the implementation of the PMT intervention.

Methods

Sample

Data were collected from a convenience sample of 29 participants, between 19 and 45 years-old (28.55 ± 5.49), 4 males, with a previously clinical diagnosis of mild or moderate intellectual disability, attending an Occupational Activity Center (OAC) Participants were divided into three groups: OAC SC (n=13), OAC F (n=7) and OAC M (n=9) The first two groups benefited from the PMT program in water, and the OAC M was the control group, engaging in "water adaptation and swimming activities". All participants had comprehension and expressive language skills to answer the evaluation scale.

Instruments

The QOL was assessed by the *Escala Pessoal de Resultados* (EPR) – the Portuguese version of *Personal Outcomes Scale* [26]. The EPR is divided in two parts: a self-report part, with a set of items to be answered by persons with intellectual disability, and report-of-others part to be answered by a proxy who knows the person quite well (for at least two years) A higher score means better QOL. The scale is based on the eight domains of the QOL model [27] mentioned previously. Each domain has 6 questions, in a total of 48 questions in both parts. Items are the same in both parts. Answers are reported in three-point Likert scale [23,24,27,28].

The EPR showed good psychometric properties: high internal consistency (Cronbach's $\alpha > .80$) [23], with test-retest values greater than .75 (except in self-reports of emotional well-being, $r = -.67$), and the ICC ranged between .69 and .91, with higher values in the "report-of-others" part [29]. The Pearson correlation coefficient showed higher values also in report-of-others, ranging between .82 and .93, with moderate to excellent relations between both parts ($.40 < r < .85$) [29]. The inter-responder reliability demonstrated excellent results for all domains and concurrent validity was found to be moderate compared with the WHOQOL-Brief scale [29]. The content validity obtained an index higher than .78 [23].

The Scale of Aquatic Skills (original: *Ficha de Avaliação do Comportamento em Meio Aquático*) for adults and teenagers version, aims to evaluate aquatic skills [30]. Because participants were all adults some adaptations were performed. A total 86 items are distributed by seven domains [30]: *Initial disinhibition* (8 items) to observe individual's first reaction to the water; *Getting in-and-out of the pool* (7 items) to verify the level of independence on this task; *Articular Movements*, subdivided in 2 groups (Active and Passive Articular Mobilizations) with 6 items each; *Balance and Floatation* (14 items); *Breathing Function* (11 items); *Active Movements* (13 items) to analyses motor skills; *Interaction* (3 items) to assess relation between the participant, with peers, and objects in space. All skills are assessed based in performance: success and failure (passivity and opposition) and support level, ranging from 4 points (best performance with no support) to "-1" point (opposition to do the task even with physical support) Finally, in Interaction items are rated 1 (success) or 0 (failure) All items points are sum up to form the item score. No psychometric data on the scale are known.

Procedures

All ethical requirements were guaranteed. Service agencies were contacted by email to collaborate in the study. All participants, as well their caregivers, were informed about the research purpose and all methods and procedures planned, being assured the confidentiality and anonymity of the responses. After their written informed consent, both evaluation instruments were applied in institution setting, at three different moments: pre (two evaluations to establish baseline before intervention program), post (after the PMT program implementation), and one month after the end of PMT

program, in order to assess the skill retention level learned and its impact in the QOL of all participants.

The EPR was applied in the form of an interview to participants with IDD and their proxies and its fulfilment took approximately about 30 minutes. The interviewer was always the same and all questions were read aloud, and answers were recorded according to what each respondent answers. The Scale of Aquatic Skills was applied by the researcher in the same three moments. After scales application and based on results a PMT intervention program in water was planned and implemented.

Statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS), version 22.

Psychomotor intervention program in water

The PMT intervention include five main strategies: strengthens and weaknesses identification, establishment of an individual profile, definition of goals to develop, program implementation and final evaluation in order to analyze the participants progress and the effectiveness of the program [5]. The activities were focused on psychomotor skills (e.g., fine and gross motor abilities, eye-hand coordination, balance, time and space), sensorial-perceptual, cognitive, and social proficiencies. In water, the need of adaptation to a different environment was considered through security, competence feeling experience and playful situations [31]. Then, all psychomotor factors (e.g., tonus, balance, fine and gross motor skills) as well breathing, propulsion and sense of depth were stimulated [32] aiming to achieve swimming techniques and diving [31]. A session example for groups experiencing PMT program is provided in Table 1, and for the control group in Table 2.

It was devoted a particular attention to adequate equipment and materials for safety, and all activities were planned according to participants chronological age, their interests and preferences, and their characteristics. Instructions were simple and direct, followed by demonstration.

Sessions of 50-60 minutes were implemented on a weekly basis for the 16 weeks that followed this structure: General Activation (15 minutes) as an initial preparation for tasks in the pool and to promote dialogue between clients and therapist; Activities Development (20 to 30 minutes) with the performance of several activities to promote capacitation and develops cognitive and motor skills; and lastly, Return to Calm (5 minutes) aiming to relax and to fasten recovery. Tasks were always performed in a group, and in each final session a record was registered.

Results

As stated before, baseline measures were collected before PMT program implementation so that change in measures over time could be assessed. In addition to measuring personal outcomes, it was also created a list of indicators to identify strengthens and weaknesses of the program, for possible improvements to be performed.

Firstly, and according to a normal distribution and homogeneity of variance ($p > .05$), parametric techniques were chosen for the comparison study. The mean value and standard deviation were calculated for each variable (Table 3) Results obtained for each group in the three moments of evaluation of global indices and each domain of QOL and water skills showed an increase in the mean scores between the baseline and the final evaluation after the PMT. After one month of intervention, there was a slight decrease in scores.

Bonferroni test (ANOVA repeated measures – for the intragroup differences analysis, Table 4) and Scheffe post-hoc test (for inter-group differences study, Table 5) were calculated. A significance level of .05 was used. There was a slight decrease in retention evaluation results in at least two groups. The intra-group analysis (Table 4) showed statistical

Table 1: Session-type of the Psychomotor Intervention Program in Water.

Groups 1 e 2; Month: February; Week: 2nd, 3rd & 4th; Duration: 40' a 50'				
Activity	Time	Materials	Goals	Strategies / Comments
General activation	Diving to the bow, on the edge of the pool	5'	Arch	Adaptation to the aquatic environment. Customers should be positioned on the edge of the pool and dive into the arc (diving can be head or feet) Carry out the vactivity along the stairs, so that it can be repeated.
	Immersion and Respiration	10'		Working immersion; To promote the process of immersion and voluntary expiration under water. Individually plunge and exhale air through the nose or mouth. Blow water to make bubbles. Individually plunge, but with expiration under water (blowing). Then, all at once, and they make dipping expire under water.
Development	Dolphins	10'	Arch	Introduction to diving; Working breathing; Promote the slide. Clients make a dolphin with the bow vertically. Then perform another dolphin but now with the arc horizontal. After finishing the Dolphin continue until the middle of the pool to do dolphins. Note. Before they realize the 2nd dolphin alert them to then have to continue.
	Game Trash	10'	Arch Balls Floatation materials Pull-buoy Planks Dumbbells	Dispose the different materials in the pool and pack them by categories. Promote the ability of concentration and team spirit. Divide into uniform groups, creating teams. Make a mini competition to see who can pack the material in less time and in the right way. Promote mutual aid and cooperation among colleagues.
Return to Calm	Plank jumps	5'		Promote relaxation. Customers should jump off the board. Dives: feet or head.



Table 2: An example of Water Activities Session (control group).

Session Aquatic Activities - Swimming lessons			Duration: 50-60 minutes	
Session Goal: Improve swimming techniques - Freestyle, Backstroke and Breaststroke			Level: Advanced	
Activity	Time	Goals	Strategies	Materials
Entry in the swimming pool (stairs)	5'	(Articular Mobilization): Enter the pool in a safe and controlled manner, followed by small strides and strokes over the pool.	The Floatation material can be used with clients that have greater motor difficulty.	Wheelchair; Floatation materials
Breathing exercises (poolside)	5'	Immerse / exhale under water in a slow and controlled manner.	Using the technique of "Blowing" immersion.	Floatation materials (if necessary)
Dolphins	5'	Immerse with displacement and breathe control.	Body movement with movements of the legs and arms. Aquatic breath control.	---
Legs - crol	5'	Beat coordinated and rhythmic leg with float object support.	Keep your legs together, with a rate of alternating and steady legs. Elevation of the dorsal and glutes.	Plank
Legs - crawl - with stroke	5'	Beat coordinated and rhythmic legs and arms with float object support.	Keep your legs together, with a rate of alternating and steady legs. Elevation of the dorsal and glutes. Lift the elbow, armload rhythmical.	Plank
Legs - back	5'	Beat coordinated and rhythmic leg with float object support.	Keep legs together, with a rate of alternating and steady legs. Lift the pelvic area. Relax the head.	Plank
Legs - back - with stroke	5'	Beat coordinated and rhythmic legs and arms with float object support.	Keep legs together, with a rate of alternating and steady legs. Lift the pelvic area. Relax the head. Lifting the arms close to the head and the rhythm of the stroke.	Plank
Stroke - prone	5'	Beat coordinated and rhythmic arm with float object support.	Perform the movement of the stroke prone	Pull-buoy e Floatation materials
Jumping into water & freestyle	7'	Diving into water (foot or head), followed by Freestyle until the end of the track.	Correct entry in the water. Quick passage to freestyle. Touching the wall at the end of the track.	---
Getting out Water (stairs)	5'	Leaving the pool in a safe and controlled manner.	Exit stairs. Pay attention to the wet conditions.	Wheelchair; Floatation materials

Table 3: Descriptive statistics of all groups in all evaluation moments.

EPR- SR	OAC SC			OAC F.			OAC M.		
	BEv x±sd	FEv x±sd	REv x±sd	BEv x±sd	FEv x±sd	REv x±sd	BEv x±sd	FEv x±sd	REv x±sd
PD	14.2±1.73	14.7±.49	13.5±1.85	13.9±2.67	14.4±1.39	10.9±5.15	14.1±1.54	15.8±.67	15.1±1.62
SD	12.6±1.85	13.2± 3.59	12.2±1.63	13.6±1.27	13.3 ±1.25	9.14±4.45	13.1±2.32	12.6±2.07	13.9±2.32
IR	13.7±1.44	15.5±1.45	13.9±2.99	14.0±1.00	15.0±1.73	14.6±5.56	14.3±1.73	15.2±1.39	15.6±2.24
SI	12.3±1.65	12.3±1.49	12.3±2.59	11.9±1.22	12.0±1.98	10.4±4.86	11.9 ±1.45	12.0±1.50	13.1±2.98
R	11.3±3.43	11.5±2.88	12.5±2.18	10.0±1.73	12.3±2.63	11.3±5.25	14.3±1.50	15.6±2.40	14.1±2.42
EWb	15.9±1.35	16.0± 1.41	17.1±.95	15.7±1.89	17.0± .82	14.0±6.29	15.8±1.71	17.0±.87	15.8±2.33
PWb	13.1±2.06	13.9±1.40	14.3±1.70	13.1±1.86	13.9±.90	12.9±5.73	13.4±2.07	13.4±1.67	15.3±.87
MWb	10.9±2.30	11.8±2.86	11.7±2.25	10.6±1.27	12.6±2.44	7.6±3.59	12.3±1.66	12.8±1.72	9.1±1.54
QoL_SR	102.9±9.9	108.5±6.6	107.0±11.0	102.3±7.9	110.6±6.9	88.7±36.9	110.4±10.7	114.3±7.2	110.9±10.4
EPR Domains – Report of Others									
PD	13.1±1.82	13.15±1.95	12.85±1.86	14.0±1.29	14.0±1.83	10.7±5.02	14.1±2.15	14.2±1.79	15.2±1.92
SD	11.2±2.67	11.6±2.40	11.8±1.36	11.0±2.38	11.4±2.51	8.7±4.07	12.9±2.39	13.2±2.32	13.1±1.69
IR	12.8±2.67	12.9±3.11	13.5±2.33	13.7±1.49	13.9±1.57	12.1±5.69	14.8±2.05	14.8±2.54	16.2±1.86
SI	11.4±2.63	11.5±2.90	11.8±3.16	13.4±2.44	13.4±2.44	10.1±4.56	12.7±2.49	12.2±2.54	12.6±2.74
R	10.9±3.33	10.2±3.36	10.7±2.39	11.0±2.16	11.4±1.90	10.6±5.19	12.1±1.54	12.2±1.39	13.2±2.17
EWb	15.0±2.0	15.1±1.71	13.3±1.79	14.8±2.61	14.7±1.57	12.9±7.60	14.6±2.42	15.2±1.56	15.8±1.64
PWb	12.5±1.94	12.3±1.97	13.5±1.05	14.6± 2.23	14.7± 1.60	12.4±5.59	12.2±.67	13.0±1.94	15.4±1.33
MWb	8.92±1.71	8.77±1.74	8.85±2.19	8.57±1.51	8.43±.79	6.4±2.93	9.11±1.36	8.78±.83	8.56±1.59
QoL_RO	95.6±11.4	95.9±11.8	96.2±12.6	100.6±11.1	102.9±11.2	82.1±37.1	102.4±7.53	104.1±8.8	110.1±9.7
Scale of Water Skills									
D	25.4 ±9.4	28±8.6	27.9±4.9	30.6±2,5	31.3±1.5	30.9±2.3	27.1±10.3	26.8±10.4	30.2±2.6
GIO	23,7±7,8	24.1±7.61	23.9±5.7	24.1±7.6	24.3±7.5	24.3±7.5	22.2±8.9	22.2±8.9	25.3±3.8
AM	10.5±8.9	10.1±5.6	9.5±3.8	10.3±4.5	9.1±.5	10.3±4.5	10.7±4	10.7±4	10.7±
B&F	27.9±11.2	36.9±15.8	36.8±13.3	22.9±16.1	27.1±16.8	25.4±17.3	36±18.6	38.9±20	45.1±14.3
B	34.2±14.1	35.2±13.2	35±12.4	31.1±5.1	38.4±4.8	37.9±5.2	32.1±14.7	32.1±14.7	36.3±8.5
AM	37.6±15.4	41.3±15.9	41.2±15.7	31.7±14.7	35.3±14.6	33.6±14.9	42.6±20.4	42.1±21.1	48.8±14.5
IT	4.1±1.7	5.4±1.7	5.5±0.9	6±0	6±0	6±0	5.1±2	5.3±2	5.1±1.2
IP	5.2±2	6.2±1.9	6.6±0.9	7±0	7±0	7±0	6.2±2.3	6.2±2.3	5.8±2.3
IO	5.9±2	6.3±0.3	6.9±0.3	7±0	7±0	7±0	6.2±2.3	6.2±2.3	6.2±2.3



Table 4: Repeated Measures ANOVA scores for QoL domains and water skills of intra-groups in the different moments of evaluation.

POS Domains – Self-Report	OAC SC		OAC F		OAC M	
	BEv vs. FEv	FEv vs. REv	BEv vs. FEv	FEv vs. REv	BEv vs. FEv	FEv vs. REv
PD	.98	1	1	1	.04	.79
SD	1	1	1	1	1	1
IR	<.001	.25	.93	1	.31	1
SI	1	1	.87	1	1	.98
R	1	.50	.04	1	.58	.81
EWb	.05	.11	.45	1	.20	.65
PWb	.74	.92	1	1	1	.03
MWb	.64	1	.98	1	.01	.01
QoL_SR	.03	11	.21	1	.65	1
POS Domains – Report of Others						
PD	1	1	1	1	1	.32
SD	1	1	.60	1	1	1
IR	1	1	1	1	.13	1
SI	1	1	1	1	.97	1
R	.52	1	.60	1	1	.82
EWb	.04	.02	1	1	1	1
PWb	.57	.22	1	1	<.001	.02
MWb	1	1	1	1	1	1
QoL_RO	1	1	.54	1	1	.03
Scale of Water Skills	BEv vs. FEv	FEv vs. REv	BEv vs. FEv	FEv vs. REv	BEv vs. FEv	FEv vs. REv
Disinhibition	.24	1	.93	.60	1	1
Getting in-out pool	1	1	1	1	1	1
Articular Movements	1	1	1	1	1	1
Balance/Floatation	<.001	1	.04	.69	.001	1
Breathing	1	1	.07	.52	1	1
Active Movements	.11	1	.15	.21	1	.94
Interaction-teacher	.01	1	----	1	1	1
Interaction-peers	.13	1	----	1	1	1
Interaction-objects	.52	.88	----	1	1	1

differences in some QOL domains as well in aquatic skills. Some differences were found in inter-group analysis.

The analysis of participants' aquatic skills scores tended to show an independent functioning with better scores after the program. Regarding Balance and Floating, Breathing and Active Movements, all participants performed higher than before intervention. A similar tendency was found in both parts of QOL scale: better scores after PMT program implementation

Discussion of Results

This study aimed to evaluate the contribution of a PMT intervention in water, in terms of QOL and aquatic skills of adults with intellectual disability. The lack of research in PMT area at Portugal is still a reality and this study tries to add some evidences on this topic. Further, it is one of the few studies [24] that involved the active participation of persons with intellectual disability [1,33] to assess their own QOL.

Our findings show some improvements in the QOL indices (self-report and by others) after the implementation of the PMT program in all OAC, although only few areas showed significant differences in all three evaluation moments.

Although this may be a good indicator of PMT intervention for adults with intellectual disability, it should be interpreted carefully due to reduced sample size and other variables that weren't considered. Nevertheless, findings pointed out that person (with ID)-centered plan and targeted to their needs can generate benefits and functional gains through psychomotor therapy intervention in water, with better scores in QOL index. Our results are in line with previous studies in the field [16,34,35].

In QOL self-report in OAC SC only the *social inclusion* domain has remained unchanged, which can be explained by efforts that institutions are doing to move into community. In this OAC significant statistics differences were found in *Interpersonal Relations* with positive impact in QOL Index. The *Emotional Well-Being* domains showed significant differences in both parts of the EPR. Further, in OACF and OACM there was a slight decrease in self-determination domain, maybe due to little promotion of such skill with persons with IDD [36,37] at the Portuguese level [38,39]. This lower result was also found in material well-being in OACM. At national level, persons with IDD are still considered as "consumer" controlled by others, rather than as full members of community [24], which still



Table 5: Scheffe post-hoc test scores: comparison of QOL domains and skills in water of the OAC in 3 different times.

EPR Domains – Self-Report	Baseline Evaluation (BEv)			Final Evaluation (FEv)			Retention Evaluation (REv)		
	OAC SC vs. OAC F	OAC SC vs. OAC M	OACF vs. OACM	OACF vs. OAC SC	OACM. vs. OAC SC	OACM. vs. OACF	OAC SC vs. OACF	OAC SC vs. OACM	OAC F vs. OACM
PD	.95	.99	.97	.91	.16	.13	.27	1	.32
SD	.57	.84	.89	.99	.16	.87	.27	1	.33
IR	.90	.60	.90	.50	.85	.76	.26	1	.32
SI	.82	.81	.99	.87	.92	.67	.26	1	.32
R	.57	.04	.01	.81	.91	.07	.26	1	.32
EWb	.74	.99	.82	.20	.01	.20	.27	1	.31
PWb	.96	.92	.21	1	.80	.84	.26	1	.31
MWb	.95	.22	.20	.79	.65	.99	.31	.99	.31
QoL_SR	.99	.22	.27	.82	.17	.56	.21	.92	.14
EPR Domains – Report of Others									
PD	.62	.42	.99	.63	.43	.97	.26	1	.33
SD	1	.18	.27	.99	.33	.35	.27	1	.29
IR	.72	.19	.70	.72	.26	.79	.26	.99	.32
SI	.82	.48	.87	.34	.84	.68	.26	1	.32
R	.10	.59	.71	.58	.20	.83	.23	.99	.32
EWb	.85	.89	.99	.91	.98	.91	.26	.99	.32
PWb	.06	.92	.04	.07	.67	.36	.26	1	.32
MWb	.89	.96	.79	.56	1	.62	.27	1	.32
QoL_RO	.60	.33	.94	.39	.23	.97	.36	.31	.04
Scale of Water Skills									
Disinhibition in Water	.45	.90	.73	.70	.94	.56	.26	.37	.95
Getting in-out of pool	.99	.92	.90	.10	.87	.88	.99	.85	.94
Articular Movements	.10	.10	.99	.93	.96	.84	.93	.82	.98
Balance and Floatation	.78	.49	.25	.50	.96	.42	.27	.43	.04
Breathing	.96	.93	.84	.86	.85	.60	.83	.95	.96
Active Movements	.76	.80	.46	.76	.10	.74	.57	.52	.16
Interaction with teacher	.05	.34	.55	.72	.99	.72	.44	.66	.15
Interaction with peers	.15	.49	.72	.68	1	.68	.78	.47	.24
Interaction with objects	.49	.94	.72	.73	.99	.71	.99	.48	.51

limits the decisions being associated to overprotection by part of care providers [39,40]. Also in QOL retention results, through proxies' answers, some decreases or unchanged scores were found in the same domains of *Rights*, *Self-Determination* and *Material Well-being*. The discredit [38], associated with little stimulation and importance of these skills [39] may explain these findings.

On the other hand, it is noticeable that most of the scores decreased, when retention is evaluated, one month after the program ended. This tendency was also found by Oliveira (2009) [41] when she assessed adaptive behavior skills of a small group of adults with ID. It seems to suggest the need for continuous stimulation of daily living skills for everyday independent functioning.

Also in aquatic environment the same trend was found, with an increase of mean scores in the immediate evaluation after the program implementation, followed by a slight decrease a month after, corroborating Pôrto and Ibiapina (2010) [42].

When comparisons are made between all groups in all

evaluations moments, it was possible to observe the existence of significant statistical differences as expected through the examination of previous studies [43,44]. The most evident ones were found between OCA SC/F and M at domains of *Rights* (baseline) and *Emotional Well-being* right after PMT program in self-report perspective. According to caregivers, *Physical Well-being* showed differences, with participants of OAC M assuming a better sense of their rights (vs. their peers in other OAC) due to their reduced need for support at the level of skills of daily living.

Water properties and its beneficial effects, for individuals with special needs particularly in cognitive and motor functioning improvements, seems to have a positive impact on individual QOL. Our study seems to corroborate previous studies conducted with children [14,34,35]. It is to be noted the lack of such studies in adult population.

Conclusion

Monitoring and evaluation of any program or intervention will provide feedback on program effectiveness and its

adjustment for the target-population. It also allows to identify facilitators and barriers to its implementation with consequences on services and supports provision in community settings [45], and subsequent impact at the QOL level of each person with IDD [46].

This study presents some quantitative data supporting the effectiveness of PMT intervention in water in some QOL domains and in aquatic skills, which was corroborated by qualitative improvements in daily observation. Despite some improvement, there was no significant progress in all areas, as expected. A possible explanation for this, besides the wide range of QOL items, could be the short intervention period that may not have been sufficient for the acquisition, consolidation and transfer of experienced skills.

Future research could address the sample size, intensity of intervention, feasibility of applying PMT for individuals with the identical support needs, and long-term follow-up undertaken, to capture the sustainability and durability of outcomes. It would also be beneficial to determine the effect of PMT intervention as a stand-alone intervention. Further, future research should involve other instruments to assess independent functioning skills and community participation, always considering the subjective perspective of person with disability. Self-report is a challenge for institutions at management and organizational level [47]. Service providers need to change interventions, moving from what is “usually offered” to services and supports based on real needs and desires of each person aiming the community participation [39,40,48].

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