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TEACHERS' EVALUATION OF THE SOCIAL SKILLS AND RECREATION ACTIVITIES OF 10- TO 12-YEAR-OLD CHILDREN WITH DOWN SYNDROME

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ABSTRACT

Children with Down Syndrome (DS) are perceived to be sociable and to enjoy social interaction, but they are often also found to lag in developmental milestones relating to communication and social skills. Apart from school contributing to the development of social skills, leisure and recreation participation can also contribute to the social skills development of children. The study aimed to determine the social skills and the recreation activities of 29, 10- to 12-year-old children with DS by means of a quantitative observational study design. Teachers applied the Matson Evaluation of Social Skills with Youngsters (MESSY) as an observational rating scale over five consecutive school days, whereafter the Statistical Package for the Social Sciences (SPSS) IBM software, Version 25 was used to determine the group's social skills. The teacher also completed a supplementary questionnaire on the children's recreational activities. This data were analysed in Excel. Results indicated that the children with DS show slightly more Appropriate than Inappropriate Social Skills and that they are most likely to participate in fine arts.

Keywords: Children; Down Syndrome; Leisure; Recreation; Recreational activities; Social development; Social skills

INTRODUCTION

Down Syndrome (DS) is the most common chromosomal disorder and recognisable form of Intellectual Disability (ID) and causes children to lag in developmental milestones (MacDonald *et al.*, 2012). Compared to their typically developing peers who start communicating from 10 months old and symbolically (with words and/or signs) between 12 and 18 months old (Abbeduto *et al.*, 2007), children with DS usually experience substantial language and speech delay (Down Syndrome Ireland, 2013). The development of communicative and social skills is important throughout childhood years (Sigman *et al.*, 1999; Matson *et al.*, 2011), as it is needed for social acceptance and the development of healthy relationships from infancy to adulthood (Fidler, 2005). Social skills refer to the various sets of abilities that allow an individual to communicate and interact with other people (Soto-Icaza *et al.*, 2015). It also includes behaviours such as arguing respectfully, being in a group discussion, collaborating and cooperating with others, completing agreements, expressing empathy, helping or seeking help, initiating a relationship, introducing oneself, listening to others, reading body language, and appreciating and praising others (Huitt & Dawson, 2011; Daraee *et al.*, 2016). Sigman *et al.* (1999), however, note that to be able to adjust to social situations and interact socially,

individuals need several skills, abilities and tendencies that are not always easy to distinguish or to measure.

Physical impairments (such as visual and hearing impairments) associated with DS can interfere with social skills development (SDSA, 2001), resulting in communication, social, cognitive, motor and self-help development being slower in children and young individuals with DS (Alton *et al.*, 2012). They have fewer successful responses to friendships, social initiations and interactions with peers and other individuals due to their lack of skills, difficulty in social communication, not being understood when talking and not understanding the minds of others (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Amadó *et al.*, 2012). On the other hand, Down Syndrome Ireland (2013) states that children with DS are very sociable, as they learn from social interaction with friends and family and they can learn, develop and increase their skills, similar to typically developing children (SDSA, 2001). Nevertheless, areas that might pose potential problems for children with DS (i.e. communication difficulties, behaviour and social skills) can result in an extensive range of complications (undermines academic progress and socialisation) throughout the life span and should therefore be addressed and targeted before they become noticeable areas of weakness (Fidler, 2005; Matson *et al.*, 2010; Alton *et al.*, 2012). Oates (2009) also encourages same-chronological-age-friendships among school-aged children with DS, as it may increase the quality of relationships. This will lead to longer-lasting friendships and greater feelings of acceptance by others. It may also benefit a child with DS if socially acceptable responses within each child's social circle are identified and taught (Feeley & Jones, 2007).

A vital space to ensure the optimal development of individuals with disabilities is inclusive pre-school and early primary schooling. These spaces provide opportunities for peer interaction and the development of social skills and friendships (World Health Organization & Unicef, 2012; Lucisano *et al.*, 2013b). Regrettably, for school-aged children with DS, the opportunities to practice and model social skills are often missed, resulting in friendships suffering and opportunities being lost (Oates, 2009). This can be attributed to frequent hospitalisation as infant-acquired respiratory, congenital heart and gastrointestinal disease (van Trotsenburg *et al.*, 2006), as well as thyroid disorders, Celiac Disease and atlantoaxial instability (Cohen, 2006) are common among children with DS. Therefore, frequent hospitalisation, which leads to absence from school, can be seen as one of the reasons why children with DS have reduced leisure and social development opportunities (Oates, 2009).

Apart from school, which is an important space to develop social skills, Shea (2006) states that activities done in one's leisure time also provide opportunities to develop social skills. It allows children to engage in social contact with others and is vital for physical fitness and healthy child and parent-child relationship development (Bult, 2012; Gresse, 2013; Shikako-Thomas *et al.*, 2013). Moreover, games, sports and movement could be used during both school hours and leisure time to stimulate and facilitate young people's physical, mental and social abilities training (Kristén, 2003). While leisure can be described as a state of mind or free time (Hurd & Anderson, 2010), free time is also used when recreation is described (Gresse, 2013). Recreation is seen as focused, wholesome activities that support individuals in rejuvenating and renewing their spirits and restoring their energy through positive leisure experiences (Edginton *et al.*, 2004). Unlike leisure, the outcome of recreation participation is more important than the activity itself. Recreation can therefore be described as an activity with

socially redeeming value that people enjoy participating in during their free time (Hurd & Anderson, 2010).

Surujlal and Dhurup (2009) identify recreational activities as ideal for fostering improved peer relationships with individuals with and without ID. More specific to children with DS, it was found that their social skills developed by learning from and imitating other children's behaviour while participating in extra-curricular school activities (Lucisano *et al.*, 2013a). One study also confirmed that individuals (including DS) who participated in inclusive recreation programmes experienced benefits such as having social expectations and the ability to learn social norms, as well as developing or maintaining relationships with typically developing peers or individuals with disabilities (Mayer & Anderson, 2014). It can therefore be confirmed that leisure and recreation have social value and serve today's society and the course of one's life in a purposeful manner (Parr *et al.*, 2006; Tapps & Baghurst, 2018).

The majority of the available literature on the social skills of children with DS focuses on their social deficits (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Alton *et al.*, 2012; Amadó *et al.*, 2012) rather than their potentially good, sociable abilities (SDSA, 2001; Down Syndrome Ireland, 2013). It is, however, evident that school-based leisure and recreation opportunities can address and improve their social skills at a young age. Moreover, none of these literature studies were compiled in South Africa, let alone in the North West province. The benefit of leisure and recreation participation on the social skills of children with DS, the absence of South African research on this population and on how it can aid teachers in dealing with the children in their class, emphasise the necessity of this study. It is also important for all children to develop their social skills throughout their childhood years (Sigman *et al.,* 1999:1), thus early recognition of problem areas is necessary and should be addressed before it becomes a weakness (Fidler, 2005). However, assessing the social skills of young children with DS is quite difficult (Matson *et al.*, 2010) as some of the children do not yet speak by the age of three years (Abbeduto *et al.*, 2007). It is, therefore more accessible to assess older children with DS, such as those in middle and late childhood.

PURPOSE OF THE RESEARCH

The purpose of this study was to answer the following question: What are the teachers' evaluation and perceptions of the recreational activities and social skills of 10- to 12-year-old children with DS in the North West province?

METHODOLOGY

Study design

A quantitative observational study design was used to determine children with DS's social skills and recreation activities. Observations took place during break over five consecutive school days, where a social skills rating scale and a supplementary questionnaire on recreation activities were completed to determine what type of recreational activities the schools provided.

Participants

The inclusion criteria for participation in this quantitative study were individuals (1) with DS as their only diagnosis; (2) who were between the ages of 10 and 12 years during data collection; (3) whose parents/guardians resided in the North West province (NW); and (4) who resided with their parents/guardians. If a child could not answer the questions on the child assent document or did not adhere to the inclusion criteria, they were excluded from the study.

The participants for this study included 29 purposely selected male (n=11) and female (n=18), 10- to 12-year-old children with DS from 13 different Severely Intellectually Disabled (SID) Special Schools in the North West province. From the 29 children who participated in the study, the specific ages during data collection (before 1 December 2019) were as follows: 10 years old (n=14); 11 years old (n=5) and 12 years old (n=10). Concerning race, the majority of the children (n=28) were classified as South African/black/African/Tswana and only one (n=1) was classified as white.

For the individuals who served as the observers/informants during the study, inclusion criteria were stipulated as individuals: (1) who were seen as the children with DS's regular teacher; (2) who were willing to observe the child/children with DS and answer a supplementary questionnaire on their recreational activities; and (3) who spoke and/or understood either Afrikaans, English or Setswana. If an individual did not adhere to the inclusion criteria, they were excluded from participating as the observer/informant. After recruitment, 20 teachers acted as observers/informants in the study, with a teacher-child ratio for observations of 1:1 (for 13 teachers), 1:2 (for 5 teachers) and 1:3 (for 2 teachers). The ratios differed as some teachers had more than one 10- to 12-year-old children with DS in his/her class to observe.

Measuring instruments

Social skills

The Matson Evaluation of Social Skills with Youngsters (MESSY) measurement was used as an observation instrument to assess the social skills of the children with DS (Matson *et al.*, 2010). In the book "*Psychopathology in the mentally retarded*", Matson and Barrett (1993:36) recommends the MESSY as the leading paper-and-pencil measure to evaluate the social skills of individuals with ID. This instrument aims to assess the Appropriate and Inappropriate Social Skills of individuals between the ages of 4 and 18 years (Matson & Wilkins, 2009; Matson *et al.*, 2011). In some studies, the authors used both the terms "social skills" and "social behaviours" when they referred to the aim of the MESSY (Deniz *et al.*, 2009; Kalyva & Agaliotis, 2009; Matson *et al.*, 2010; Matson *et al.*, 2013; Prieur *et al.*, 2016; Weeland *et al.*, 2017). From these studies, it can be understood that an observation of the Appropriate and Inappropriate Social Skill behaviours is done to determine the overall social skills of the youngsters.

The MESSY was developed to gain information from multiple respondents on the frequency of a wide range of positive and negative social behaviours (Bell-Dolan & Allan, 1998; Matson & Wilkins, 2009). This instrument consists of two forms: a self-rating scale with 62 items and a parent and teacher rating scale with 64 items (Matson *et al.*, 2010). For the purpose of this study, the parent and teacher form was used. Furthermore, according to Matson (1990), any

adult who knows the child reasonably well is competent to use the teacher rating form. The selected informants/observers completed the MESSY for this study.

A 5-point Likert scale, ranging from 1 to 5, was used to rate the items (Bell-Dolan & Allan, 1998). The scoring of the Likert scale was as follows: 1 not at all, 2 seldom, 3 sometimes, 4 often and 5 very much. According to Matson *et al.* (1983), as cited by Matson *et al.* (2013), the teacher rating form consists of three factors: Inappropriate Assertiveness/Impulsiveness-, Appropriate Social Skills and Miscellaneous. The method that was used for calculation is discussed in Table 3, under Factor Descriptive Statistics.

The MESSY indicated an internal reliability of 0.80 for the total score, 0.54–0.89 across factors and above 0.94 for the teacher version factors (Matson & Wilkins, 2009).

Recreational activities

Together with the MESSY, the teachers were asked to fill out a supplementary questionnaire with regard to the child's recreational activities during the five-day observation. These activities were provided by the school or formed part of school activities or leisure time at school. This information provided an idea of which activities were presented at the schools, which may be used to explain research findings. The supplementary question that was given to the teachers consisted of the 14 Activity Areas, as identified and compiled by Russell and Jamieson (2008).

Ethics clearance

Permission was obtained from the Health Research Ethics Committee (HREC) of the university affiliated with the study (NWU-00126-18-A1). The provincial Department of Education was contacted for permission and approval to recruit participants from the SID Special Schools in the province.

The parents/guardians of the participants had to give written parental consent and the parents/guardians/teachers had to carefully explain the study to the children, after which the children were guided in giving either verbal, signed (if able), or fingerprint assent. Teachers gave consent if they wanted to act as the informant.

Data analysis

Social skills

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS IBM software Version 25). Firstly, descriptive statistics for each item were calculated, which included frequencies and percentages for all the data (categorical and continuous variables) and mean and standard deviations for the continuous data. Participants adhering to the specific inclusion criteria set in the current study was scarce, therefore only 29 were identified from 13 different schools. Due to the small number of participants from each respective school, it was impossible to determine whether there were statistical differences between the social skills and various activities. The reliability of the three social skills factors (Appropriate, Inappropriate and Miscellaneous) was tested using Cronbach's Alpha. If the reliability does not hold, the scores for the three social skills factors and the total social skills cannot be calculated. Thus, it was necessary to calculate the reliability before calculating the scores to reach the objective.

After the reliability had been tested, the scores for appropriate, inappropriate and total social skills factors were calculated. The total social skills score was determined by reversing the Appropriate Social Skills subscale ratings and adding its total score to the Inappropriate Social Skills subscale total score and the Miscellaneous total score (Kalyva & Agaliotis, 2009; Matson *et al.*, 2010). To determine their social skills, descriptive statistics for the three social skills factors and total social skills were calculated. By calculating the means of the three social skills factors and total social skills, the average social skills level of the whole group was determined.

Recreational activities

The supplementary questionnaire consisted of a table outlining the recreational activity areas, specific examples and a "comment" column where observations were reported and later transferred to a computer programme (Excel). This information was analysed by identifying the number of children who participated in each activity area. The specific activities that the teachers reported were summarised according to the classifications and examples set out by Russell and Jamieson (2008).

RESULTS

Social skills reliability

Table 1 provides a summary of the reliability of the Appropriate, Inappropriate and Miscellaneous Social Skills Factors, with specific reference to the inter-item correlation analysis and the mean ($\bar{x}$) and standard deviation (SD) scores required for the factor descriptive statistics.

Table 1. **RELIABILITY VALUES (INTER-ITEM CORRELATION) AND FACTOR DESCRIPTIVE (MEAN AND SD) SCORES FOR INAPPROPRIATE, APPROPRIATE AND MISCELLANEOUS SOCIAL SKILLS FACTORS**

Social skills factors	MESSY item numbers	Inter-item correlation*	Mean (SD)
Inappropriate	2-9, 11-17, 21-24, 27, 29-32, 35-36, 38, 42-44, 48-49, 52-53, 55, 57-58, 60-64	0.33	2.01 (0.67)
Appropriate	1, 10, 18-19, 25-26, 28, 33-34, 37, 39-41, 45, 47, 50-51, 54, 56, 59	0.28	2.73 (0.67)
Miscellaneous	20, 46	0.68	1.79 (0.91)

*Inter-item correlation: 0.1 - 0.5 = Sufficient correlation. Smaller than 0.1 or larger than 0.5 = no correlation.

The Cronbach's Alpha for the MESSY in this study was remarkably high for the Inappropriate Social Skills behaviours ($\alpha = 0.95$) and slightly lower for the Appropriate Social Skills behaviours ($\alpha = 0.89$) and Miscellaneous items ($\alpha = 0.81$). Considering that the guideline value is at least $\alpha = 0.6$, all three factors are deemed to be reliable. The inter-item correlation indicates sufficient correlations between the items of the Inappropriate Factor and the Appropriate Factor (Table 1). Although a high inter-item correlation score of 0.68 was found for the Miscellaneous Factor, it emphasises that the items are repetitive.

Social skills descriptive statistics

Although the MESSY consists of three factors (Inappropriate, Appropriate and Miscellaneous Social Skills), the rating scale consisted of the 64 social skills behaviours that were observed by the teachers. The 64 items were all disarranged in the outline that was provided to the teachers. Table 2 provides an outline of the MESSY item numbers, item descriptions as well as the Likert Scale frequency and percentage (%) scores, mean ($\bar{x}$) and standard deviation (SD) scores for all 29 children.

***Table 2*. NUMBER AND PERCENTAGE (%) OF RESPONSES PER FREQUENCY AS WELL AS THE MEAN AND SD SCORES FOR EACH MESSY ITEM OBSERVED AS A GROUP**

Item no.	Item description	Frequency (%)					Mean (SD)
		1 Not at all	2 Seldom	3 Some-times	4 Often	5 Very much	
Factor 1: Inappropriate Social Skills							
2	Threatens others	12 (41.4)	5 (17.2)	6 (20.7)	4 (13.8)	2 (6.9)	2.28 (1.33)
3	Easily angered	10 (34.5)	8 (27.6)	3 (10.3)	8 (27.6)	0 (0.0)	2.31 (1.23)
4	Bossy	14 (48.4)	3 (10.3)	5 (17.2)	5 (17.2)	2 (6.9)	2.24 (1.41)
5	Complains often	9 (31.1)	7 (24.1)	4 (13.8)	6 (20.7)	3 (10.3)	2.55 (1.40)
6	Interrupts others while speaking	11 (37.9)	9 (31.0)	6 (20.7)	2 (6.9)	1 (3.5)	2.07 (1.10)
7	Takes things without permission	13 (44.8)	9 (31.1)	3 (10.3)	2 (6.9)	2 (6.9)	2.00 (1.22)
8	Brags	15 (53.5)	4 (14.3)	5 (17.9)	3 (10.7)	1 (3.6)	1.96 (1.23)
9	Hits when angry	12 (41.4)	5 (17.2)	4 (13.8)	4 (13.8)	4 (13.8)	2.41 (1.50)
11	Gives others dirty looks	15 (51.7)	8 (27.6)	5 (17.2)	1 (3.5)	0 (0.0)	1.72 (0.88)
12	Feels angry when someone does well	26 (89.7)	2 (6.9)	1 (3.4)	0 (0.0)	0 (0.0)	1.14 (0.44)
13	Picks out other's faults	16 (55.2)	7 (24.1)	3 (10.3)	2 (6.9)	1 (3.5)	1.79 (1.11)
14	Wants to be first	14 (48.3)	4 (13.8)	6 (20.7)	3 (10.3)	2 (6.9)	2.14 (1.33)
15	Breaks promises	16 (57.1)	6 (21.4)	4 (14.3)	1 (3.6)	1 (3.6)	1.75 (1.08)
16	Lies	14 (48.4)	8 (27.6)	5 (17.2)	1 (3.4)	1 (3.4)	1.86 (1.06)

Item no.	Item description	Frequency (%)					Mean (SD)
		1 Not at all	2 Seldom	3 Some-times	4 Often	5 Very much	
17	Picks on others	15 (51.7)	7 (24.1)	4 (13.8)	1 (3.5)	2 (6.9)	1.90 (1.21)
21	Purposely hurts others' feelings	16 (55.2)	7 (24.1)	2 (6.9)	3 (10.3)	1 (3.5)	1.83 (1.17)
22	Sore loser	18 (62.1)	7 (24.1)	3 (10.3)	0 (0.0)	1 (3.5)	1.59 (0.95)
23	Teases others	13 (44.9)	7 (24.1)	5 (17.2)	4 (13.8)	0 (0.0)	2.00 (1.10)
24	Blames others	13 (44.8)	7 (24.1)	6 (20.7)	2 (6.9)	1 (3.5)	2.00 (1.13)
27	Thinks he/she knows all	19 (67.8)	5 (17.9)	3 (10.7)	0 (0.0)	1 (3.6)	1.54 (0.96)
29	Stubborn	10 (35.8)	4 (14.3)	6 (21.4)	2 (7.1)	6 (21.4)	2.64 (1.57)
30	Acts better than others	18 (62.1)	7 (24.1)	3 (10.3)	1 (3.5)	0 (0.0)	1.55 (0.83)
31	Shows feelings	3 (10.3)	8 (27.6)	13 (44.9)	3 (10.3)	2 (6.9)	2.76 (1.02)
32	Falsely thinks others are picking on him	13 (44.9)	9 (31.0)	3 (10.3)	4 (13.8)	0 (0.0)	1.93 (1.07)
35	Makes sounds that bother others	18 (62.1)	4 (13.8)	2 (6.9)	2 (6.9)	3 (10.3)	1.90 (1.40)
36	Brags when wins	12 (41.5)	7 (24.1)	5 (17.2)	5 (17.2)	0 (0.0)	2.10 (1.14)
38	Speaks loudly	13 (46.4)	7 (25.0)	4 (14.3)	1 (3.6)	3 (10.7)	2.07 (1.33)
42	Defends self	7 (24.1)	6 (20.7)	7 (24.1)	5 (17.2)	4 (13.9)	2.76 (1.38)
43	Always thinks bad will happen	18 (69.2)	4 (15.4)	3 (11.5)	1 (3.9)	0 (0.0)	1.50 (0.86)
44	Tries to be better than others	17 (58.6)	7 (24.1)	4 (13.8)	1 (3.5)	0 (0.0)	1.62 (0.86)
48	Gets upset when has to wait	18 (62.1)	6 (20.7)	1 (3.4)	2 (6.9)	2 (6.9)	1.76 (1.24)
49	Enjoys being leader	13 (44.8)	4 (13.8)	5 (17.2)	6 (20.7)	1 (3.5)	2.24 (1.33)
52	Frequently gets into fights	11 (37.9)	8 (27.7)	2 (6.9)	5 (17.2)	3 (10.3)	2.34 (1.42)
53	Jealous of others	19 (65.5)	4 (13.8)	3 (10.3)	2 (6.9)	1 (3.5)	1.69 (1.14)

Item no.	Item description	Frequency (%)					Mean (SD)
		1 Not at all	2 Seldom	3 Some-times	4 Often	5 Very much	
55	Tries to get others to do what he/she wants	12 (42.8)	10 (35.7)	1 (3.6)	4 (14.3)	1 (3.6)	2.00 (1.19)
57	Wears out welcome	9 (32.1)	7 (25.0)	3 (10.7)	4 (14.3)	5 (17.9)	2.61 (1.52)
58	Explains more than necessary	17 (58.6)	6 (20.7)	5 (17.2)	1 (3.5)	0 (0.0)	1.66 (0.90)
60	Hurts others to get what he/she wants	15 (51.9)	3 (10.3)	3 (10.3)	5 (17.2)	3 (10.3)	2.24 (1.50)
61	Talks about problems	17 (58.7)	7 (24.1)	2 (6.9)	3 (10.3)	0 (0.0)	1.69 (1.00)
62	Thinks winning is everything	13 (46.5)	9 (32.1)	3 (10.7)	2 (7.1)	1 (3.6)	1.89 (1.10)
63	Hurts others by teasing	13 (44.8)	4 (13.8)	5 (17.2)	6 (20.7)	1 (3.5)	2.24 (1.33)
64	Seeks revenge	15 (51.7)	6 (20.7)	6 (20.7)	0 (0.0)	2 (6.9)	1.90 (1.18)
Factor 2: Appropriate Social Skills							
1	Makes others laugh	2 (6.9)	7 (24.1)	10 (34.5)	9 (31.0)	1 (3.5)	3.00 (1.00)
10	Helps someone who is hurt	2 (6.9)	11 (37.9)	8 (27.6)	7 (24.1)	1 (3.5)	2.79 (1.01)
18	Initiates conversation	12 (41.4)	7 (24.1)	7 (24.1)	2 (6.9)	1 (3.5)	2.07 (1.13)
19	Says ''thank you''	3 (10.3)	2 (6.9)	7 (24.1)	6 (20.8)	11 (37.9)	3.69 (1.34)
25	Sticks up for others	15 (51.7)	9 (31.0)	1 (3.5)	4 (13.8)	0 (0.0)	1.79 (1.05)
26	Looks at others when speaking	1 (3.4)	11 (37.9)	10 (34.6)	6 (20.7)	1 (3.4)	2.83 (0.93)
28	Smiles at others	3 (10.3)	5 (17.2)	7 (24.1)	8 (27.7)	6 (20.7)	3.31 (1.28)
33	Thinks good things will happen	11 (39.3)	7 (25.0)	7 (25.0)	2 (7.1)	1 (3.6)	2.11 (1.13)
34	Works well on team	7 (24.1)	4 (13.8)	8 (27.6)	6 (20.7)	4 (13.8)	2.86 (1.38)
37	Takes care of others' property	8 (27.6)	6 (20.7)	6 (20.7)	8 (27.6)	1 (3.4)	2.59 (1.27)
39	Calls people by name	7 (24.1)	4 (13.9)	7 (24.1)	7 (24.1)	4 (13.8)	2.90 (1.40)

Item no.	Item description	Frequency (%)					Mean (SD)
		1 Not at all	2 Seldom	3 Some-times	4 Often	5 Very much	
40	Asks to help others	11 (39.3)	5 (17.9)	6 (21.4)	6 (21.4)	0 (0.0)	2.25 (1.21)
41	Feels good when helping others	5 (17.2)	7 (24.1)	9 (31.2)	5 (17.2)	3 (10.3)	2.79 (1.24)
45	Asks others questions	11 (37.9)	9 (31.0)	6 (20.7)	1 (3.5)	2 (6.9)	2.10 (1.18)
47	Feels sorry when hurts others	5 (17.9)	8 (28.5)	7 (25.0)	5 (17.9)	3 (10.7)	2.75 (1.27)
50	Plays games with other children	1 (3.5)	1 (3.5)	13 (44.8)	7 (24.1)	7 (24.1)	3.62 (1.01)
51	Follows rules in game	4 (13.8)	7 (24.1)	9 (31.1)	7 (24.1)	2 (6.9)	2.86 (1.16)
54	Does nice things for others	7 (24.1)	9 (31.2)	5 (17.2)	5 (17.2)	3 (10.3)	2.59 (1.32)
56	Makes small talk (e.g., How are you?)	9 (31.1)	4 (13.8)	10 (34.5)	3 (10.3)	3 (10.3)	2.55 (1.33)
59	Friendly to new people	3 (10.3)	8 (27.6)	9 (31.1)	5 (17.2)	4 (13.8)	2.97 (1.21)
Factor 3: Miscellaneous Social Skills							
20	Afraid to speak to others	14 (48.3)	7 (24.1)	6 (20.7)	2 (6.9)	0 (0.0)	1.86 (0.99)
46	Feels lonely	17 (58.7)	5 (17.2)	5 (17.2)	2 (6.9)	0 (0.0)	1.72 (1.00)

*Colour coding: *grey,* most prevalent answer

The highest corresponding social skill behaviours observed by the teachers were found under the "not at all" frequency category, which indicates that over the five-day-observation period, a high percentage of the children did not show the following behaviours: item 12 "feels angry when someone does well" (89.7%), item 43 "always thinks bad will happen" (69.2%), item 27 "thinks he/she knows all" (67.8%), item 53 "jealous of others" (65.5%) and item 22 "sore loser", item 30 "acts better than others", as well as item 35 "makes sounds that bother others" (62.1%).

Factor 1's top five mean scores indicate that, on average, the children sometimes "show feelings" (item 31, $\bar{x} = 2.76$,), "defend self" (item 42, $\bar{x} = 2.76$), are "stubborn" (item 29, $\bar{x} = 2.64$), "wear out welcome" (item 57, $\bar{x} = 2.61$) and "complain often" (item 5, $\bar{x} = 2.55$). It can be seen from the lowest five mean scores for Factor 1, that on average, the children with DS never "feel angry when someone does well" (item 12, $\bar{x} = 1.14$), seldomly "always thinks bad will happen" (item 43, $\bar{x}$ -= 1.50), "thinks he/she knows all" (item 27, $\bar{x} = 1.54$), "acts better than others" (item 30, $\bar{x} = 1.55$) and are a "sore loser" (item 22, $\bar{x} = 1.59$).

With regard to Factor 2, on average, the participants were found to often "say thank you" (item 19, $\bar{x}$ = 3.69) and "play games with other children" (item 50, $\bar{x}$ = 3.62). They sometimes "smile at others" (item 28, $\bar{x}$ = 3.31), "make others laugh" (item 1, $\bar{x}$ = 3.00) and are "friendly to new people" (item 59, $\bar{x}$ = 2.97). The five lowest mean items for Factor 2 that were found emphasise that on average, the children seldom "stick up for others" (item 25, $\bar{x}$ = 1.79), "initiate conversation" (item 18, $\bar{x}$ = 2.07), "ask others questions" (item 45, = 2.10 "think good things will happen" (item 33, $\bar{x}$ = 2.11) and "ask to help others" (item 40, $\bar{x}$ = 2.25).

The Miscellaneous Factor only consists of two items and although most of the children do not show these two behaviours, on average, the children are observed to seldom be "afraid to speak to others" (item 20, $\bar{x}$ = 1.86) and "feel lonely" (item 46, $\bar{x}$ = 1.72).

Factor descriptive statistics

Factor descriptive analysis was done to determine the average total social skills presented by the children using the mean subtotal scores that were calculated for each social skills factor (Table 2). The calculation procedure that was followed was derived from the study by Kalyva and Agaliotis (2009).

The highest total mean social skills score that could have been obtained was 320 and the lowest score 64, with an average score of 192. The total mean social skills score that was calculated for his study was 153.3, which indicates that the children with DS have more "good" social skills (Appropriate Social Skills) than social impairments (Inappropriate Social Skills).

***Table 3*. FACTOR DESCRIPTIVE ANALYSIS OF THE MEANS FOR INAPPROPRIATE, APPROPRIATE AND MISCELLANEOUS FACTORS, TOGETHER WITH THE TOTAL SOCIAL SKILLS MEAN SCORE**

Social skills factor	Lowest	Mean	Highest
Appropriate (reversed)	20	54.42 (65.58)	100
Inappropriate	42	+ 84.17	210
Miscellaneous	2	+ 3.58	10
Total social skills	**64**	**153.33**	**320**

*To determine the total social skills score, the subtotal mean for Appropriate Social Skills ratings were reversed by subtracting the subtotal mean Appropriate Social Skills score (54.42) from 120, which is reached by adding the lowest and highest scores [20 + 100]. Then, adding the reversed Appropriate Social Skills subtotal score (65.58) to the subtotal mean

Recreational activities

The recreational activities in which the children participated during the five-day observation period were analysed according to the outlined activity areas from Russell and Jamieson (2008). Although these authors' outline was used as a guideline, the classification of these activities is arbitrary (Russell & Jamieson, 2008). Examples were stated, after which an overview was compiled of the activity area and activities participated in most to least (see Table 4).

***Table 4*. REPORTED RECREATIONAL ACTIVITIES DURING THE 5-DAY OBSERVATION**

Activity area	Number of children (%)	Specific activities
Fine arts	23 (79.3)	Painting, tracing, clay modelling, drawing, colouring, paper making
Sports	16 (55.1)	Athletics (track & field), gymnastics, netball & soccer (catch, throw, kick)
Dance	14 (48.2)	School concert, free, expressive, social, hip-hop
Music	14 (48.2)	Listening, rhythm games, instruments, vocal
Intellectual or literary	12 (41.3)	Puzzles, writing, picture reading
Social recreation	10 (34.5)	Social dance, parties, church
Drama	8 (27.6)	Make-believe, storytelling, mime
Hobbies	5 (17.2)	Cleaning, educational (computers), collecting
Aquatics	3 (10.3)	Swimming
Travel	3 (10.3)	School trips
Crafts	2 (6.9)	Threading, weaving
Adventure	1 (3.4)	Playground swings, leg races
Outdoors and nature	0 (0.0)	N/A
Volunteer services	0 (0.0)	N/A

DISCUSSION

It was found that on average, children with DS "sometimes" exhibit Appropriate Social Skills and "seldom" Inappropriate Social Skills. The group of 29 children with DS showed more Appropriate Social Skills than Inappropriate Social Skills. It should, however, be noted that their mean total score of 153.33 out of 320 (48%) was just below average (192), which could mean that they only exhibit slightly more Appropriate Social Skills than Inappropriate Social Skills.

These results contradict studies stating that children with DS and ID have a lack of skills, lower social status, less social competence, inappropriate behaviour in social situations, trouble with social communication, are incomprehensible when talking and do not understand the minds of others (Buckley, 1993; Cory *et al.*, 2006; Oates, 2009; Solish *et al.*, 2010; Amadó *et al.*, 2012). The findings from this study are different from publications on populations from other countries as they were not only focussed on individuals with various disabilities (including ID and DS) but also included individuals varying in age (from 4- to 17 years old and adults). Thus, the results from these studies would not be relevant to this South African study since (1) there is no specific literature that referred to the social skills of 10- to 12-year-old children with DS, (2) there is a big difference in the social skills of a 4-year-old and a 17-year-old child with DS, (3) the setting and family set-up of the children differ, and (4) their exposure to social skills and leisure opportunities at their school environment vary. Literature does, however, state that children with DS have been described as very sociable or as "extrovert," "friendly" or

"outgoing" and that they enjoy social interaction with friends and family and enjoy learning from these individuals (Hornby, 1995; Down Syndrome Ireland, 2013). The last-mentioned literature corresponds with this study's results, as it was found that the top five Appropriate Social Skills behaviours of the average 10- to 12-year-old child with DS include "says thank you", "plays games with other children", "smiles at others", "makes others laugh" and "friendly to new people".

As "plays games with other children" was the second-highest average (mean) social skills behaviour reported in this study, it corresponds with literature stating that engagement in a diversity of leisure activities allows children to develop skills and engage in social contact with others (Bult, 2012; Shikako-Thomas *et al.*, 2013). Kristén (2003) states that during school hours, games, sports and movement could be used to facilitate mental, physical and social abilities training. The teachers' reports on the average social skill behaviour, "plays games with other children", and the leisure and recreational activities during school hours therefore reveals a similarity between literature and this study's results.

With regard to the leisure and recreation activities, there were two activity areas with non-participation, indicating that none of the 29 children participated in volunteer services and outdoors/nature activities. This might be due to their schools not offering these activities or the fact that the teachers do not incorporate them into their teaching curriculum. The activity that most children (79.3%) participate in at school is fine arts, including painting, drawing, colouring, clay modelling, tracing and papermaking. The activity with the second highest participation (55.1%) is sports (physical activity) such as athletics (track and field), gymnastics, netball and soccer (catch, throw, kick) and complies with literature emphasising that school-aged children with DS participate in school-provided physical leisure activities (Oates, 2009). However, this contradicts a study that states that children with DS more frequently participate in various recreational activities rather than physical activities (MacDonald *et al.*, 2016). From these results, it can therefore be seen that special schools do provide leisure and recreation opportunities. However, the data also indicated that some children do not like participating in or do not participate in some activities. This conclusion is in line with literature, which highlights the occurrence of sedentarism due to difficulty with following rules and lack of choices (Rynders *et al.*, 2003; Schwarzenegger *et al.*, 2005).

RECOMMENDATIONS

It is recommended that future studies also include an additional assistant or persons to observe the children and complete the MESSY, as this will mitigate any bias the teacher may have. In the end, there were only 29 children who met the inclusion criteria, which means that the results may not be generalisable and representative of the NW. Firstly, it is suggested that the MESSY be used in a comparative study between children with DS and their same-aged, typically developing peers. This will provide significant statistics on the specific differences and similarities regarding social skills and leisure and recreational activities among the children with DS. Another research recommendation is to assess the social skills and leisure and recreational activities of children with DS who do not attend school to see how this compares to school-attending children with DS. Also, since the MESSY is considered to be a teacher/parent report, it is recommended that the parents of the children with DS are asked to also complete the MESSY to compare differences and similarities between teachers and parents

as well as school-based and home-based behaviour and skills. Research on the differences and similarities between children with DS in the various provinces of South Africa is also recommended, as the leisure and recreation opportunities, the standard of living, number of schools and children with DS differ from province to province.

CONCLUSIONS

It can be concluded that children with DS exhibit a balance Appropriate and Inappropriate Social Skills, but lean more towards having appropriate or good social skills in this population. These results contradict the majority of literature on the social skills problems of individuals with ID and DS but concur with literature stating that they are very sociable and enjoy social interaction. Furthermore, the participants from this study experienced satisfying social interactions, as it was found that they sometimes exhibited Appropriate Social Skills. Lastly, the opportunities provided at school to participate in leisure and recreational activities may be a reason for their Appropriate Social Skills. These results show that leisure and recreation have social value and purposefully serve the society and the direction of one's life.

This information contributes to knowledge about children with DS and how to treat and work with them. It gives insight to the teacher on the specific needs of the child in their class and the level of social skills functioning, which can help them to develop leisure and recreational activities to address social skills problems or improve these skills. This data and results are relevant because they address the specific topic and focus on a population that has not yet been researched.

Conflict of interest

All authors declare that they have no conflicts of interest.

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