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ABSTRACT

Background: The quality of life (QOL) of children with and without intellectual disability (ID) has become a growing concern in the literature but the QOL instruments are not adapted for use with young children and children with ID. The objective of this study was to validate a French adaptation of the abbreviated form of the Multidimensional Student's Life Satisfaction Scale (MSLSS).

Method: Confirmatory factor analyses were conducted on the data collected from 411 children aged between 5 and 11 years old. Internal consistency, test–retest fidelity, and convergent validity were tested.

Results: The preliminary results of this study show that the model fitted the data collected to assess the life satisfaction of children, $\chi^2(395) = 705.340$; $p < .001$; CFI = 0.911; TLI = 0.902; RMSEA = 0.044. Very good levels of internal consistency were obtained for both children with and without ID, with coefficients ranging from 0.70 to 0.88. The test–retest coefficients calculated after a 2-week interval highlighted a moderate (coefficients lower than 0.70) to weak temporal stability, which seemed more pronounced in children with ID.

Conclusion: Despite some limitations, this instrument could be very useful for childhood professionals. It will enable them to assess the perception that children have of their wellbeing in the perspective of promoting their QOL. This scale also provides researchers in psychology with the opportunity to enrich their knowledge on the QOL of children with ID.

KEYWORDS

children with intellectual disability; quality of life; wellbeing; life satisfaction scale; French validation; self-assessment

Introduction

In recent decades, the QOL of people with disability has become a growing concern in the literature and in Anglo-Saxon countries (Magerotte, 2013). In the intellectual disability (ID) field, Anglo-Saxon practices support the promotion of a lifestyle of comparable quality to that of people with a typical development. Thus, everyone with ID should be able to fulfil valued social roles (pupil, student, etc.) and be considered a full citizen (Proulx, 2008).

In parallel, since the 2000s with the emergence of positive psychology, QOL has become a central subject of study for many disciplines, particularly those dedicated to childhood (Seligman & Csikszentmihalyi, 2000). This new field of research sees the QOL of individuals from the angle of subjective wellbeing in order to favour their personal thriving (Shankland, 2014). In the ID field, subjective wellbeing constitutes a central subject of study for social policies and the delivery of services. It forms the basis for the development of new policies as well as the assessment of educational programs and their readaptation with the primary objective of increasing the life satisfaction of children with ID (Proulx, 2008). According to the model of Diener (1984), the subjective wellbeing of an individual relies on the affective and cognitive assessment of his or her life and is characterised by the frequent experience of positive affects, a low level of negative affects, and a high feeling of satisfaction with his or her life. Where the affects fluctuate and have a limited existence over time, life satisfaction is more stable and represents the "cognitive-evaluative" dimension of subjective wellbeing. This dimension is considered a key determinant of subjective wellbeing (Diener, Lucas, & Oishi, 2002).

QOL instruments for children

The subjective concept of QOL has led many researchers to consider that children are best placed to express their feelings and assess their wellbeing (Upton, Lawford, & Eiser, 2008). However, various authors emphasise that the limited cognitive and language abilities of these

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children mean that their replies are marred by a number of biases: a tendency to acquiescence and social desirability, difficulty in assessing the subjective aspects, or in understanding the items. As a result, there are few scales designed for children under 8 years old (Rodary, Pezet-Langevin, & Kalifa, 2001). Moreover, to our knowledge, no instrument has been developed or adapted for children with ID.

In addition, the QOL instruments currently available were mostly developed in the paediatric field. Their primary objective is to study the impact of the illness on the QOL of sick children (Rodary et al., 2001). As a result, the dimensions linked to health and functional abilities are overrepresented in these questionnaires, which limits the place of other dimensions describing the subjective QOL of children in good health (Bruchon-Schweitzer, 2002). Moreover, as they are often inspired by instruments designed for adults, the dimensions of QOL covered by these questionnaires only partially describe the subjective QOL of children. Research has shown that peers, family relationships, and the school environment occupy an important place in the life of children (Coudronnière, Bacro, Guimard, & Florin, 2015). Yet these life domains are measured in a limited way in these instruments (Matza, Swensen, Flood, Secnik, & Leidy, 2004). In addition, most of them take the form of hetero-questionnaires, asking the opinion of the members of the child's family (Eiser & Morse, 2001). However, without knowledge of all the life experiences of children and the way they understand them, the third parties produce assessments that do not reflect the feelings and experiences of children (Rajmil et al., 2009; Upton et al., 2008). Lastly, the psychometric qualities of these instruments have not always been tested or may be questionable (Rodary et al., 2001). Most of them have been developed in English-speaking countries and very few French instruments are available (Siméoni, Auquier, Delarozière, & Béresniak, 1999). Table 1 presents four generic self-assessment scales currently available for young children from 5 years old.

Ultimately, the QOL instruments currently available are not adapted for use with very young children and children with ID. The study of their QOL and the development of generic self-assessment tools require more research, particularly in French-speaking countries. It should also be recalled that the QOL of children with special needs is composed of the same dimensions as that of children without disability (Magerotte, 2013). It is therefore essential that future tools assess the QOL of children without disability and children with ID in the same way and by collecting their point of view directly.

Providing this type of scale for childhood professionals and psychologists would enable them to assess the educational and therapeutic actions offered to children in order to improve their wellbeing (Proulx, 2008). Giving children the opportunity to express themselves regarding the decision processes that concern them would lead to a better understanding of their expectations and an assessment of the relevance of their psychotherapeutic and educational care. In addition, it would enable practitioners to identify areas that can be sources of problems in the lives of children (Lemétayer & Gueffier, 2006). Finally, such instruments could enable researchers to enrich the current theoretical knowledge on the wellbeing of children with ID, to understand better the factors that influence it, and to examine its role in children's later development (Magerotte, 2013).

The MSLSS in its abbreviated form (Huebner, Zullig, & Saha, 2012)

For these objectives, the abbreviated form of the MSLSS seems particularly relevant. In fact, this instrument assesses the QOL of children by measuring their life satisfaction. In 1994, the original form was composed of 40 items (Huebner, 1994). However, in order to simplify the content of the scale, the format of the questionnaire was reduced to 30 items by eliminating the items formulated negatively (Huebner et al., 2012). Due to its generic component and self-assessment format, it can be used to collect directly the point of view of healthy and sick children. Designed for children aged from 8 to 18 years, this scale measures their general QOL as well as their satisfaction in specific domains identified as central in the discourse of children aged from 5 to 11 years (Coudronnière et al., 2015). Lastly, it has satisfactory psychometric properties. It was validated with a population of 844 pupils aged 13 to 15 years living in south-east United States. Confirmatory analyses highlighted the structural validity of the model (Huebner et al., 2012). The convergent and discriminant validities were not tested for the abbreviated version of the MSLSS. Nevertheless, the 40-item scale presented good convergent validity with measures of affectivity, wellbeing, and feeling of self-efficacy (Gilman, Huebner, & Laughlin, 2000) and was also negatively correlated with scales of depression and anxiety (Funk, Huebner, & Valois, 2006).

The abbreviated form of the MSLSS presents a number of advantages for use with very young children and children with ID in a French-speaking context. Nevertheless, currently validated with a population of children without disability aged 8 to 18 years, the present format of the questionnaire is not adapted to the abilities and life context of children younger than 8 years old or children with ID.

Table 1. Description and psychometric properties of generic self-assessment scales of QOL for children aged 5–11 years.

	Age	QOL compo-nent	Assessors	Construct validity	Internal consistency (Cronbach's *α*)	Test–retest reliability (Pearson's *r*)	Convergent validity	Divergent validities	Country of origin
AUQUEI (Manificat, Dazord, Cochat, & Nicolas, 1997)	3–12	Health-related QOL	Children	Independence, Leisure, Functions, Family	Overall: 0.71 Dimensions: NA	Coefficients nonsignificant at 1 year	Good correlations with self-confidence of children assessed by their mothers	Age, gender	France
DISABKIDS (Petersen, Schmidt, Power, Bullinger, & the DISABKIDS Group, 2005)	4–16	Health-related QOL	Children Parents	Physical health, Social relationships, Mental health	Dimensions: 0.70–0.87 Overall: NA	Dimensions: 0.71–0.83 Overall: NA	Moderate correlations with PedsQL-4.0	Age, gender	Germany, Greece, France, Netherlands, Switzerland, Australia, United Kingdom
KINDL-R (Ravens-Sieberer & Bullinger, 1998)	4–16	Health-related QOL	Children Parents	Physical health, Mental health, Social relationships, Functional abilities	Children Overall: 0.84 Dimensions: 0.63–0.76 Parents Overall: 0.89 Dimensions: 0.62–0.81	NA	Good correlations with SF-36 and FLZ	Age, gender	Germany
PedsQL-4.0 (Varni, Seid, & Kurtin, 2001)	2–18	Health-related QOL	Children (5–18 years) Parents (2–18 years)	Physical health, Psychological health, Social relationships, School	Children Overall: 0.88 Dimensions: 0.80–0.83 Parents Overall: 0.90 Dimensions: 0.86–0.88	NA	Good correlations with comorbidity indicators	Health status	United States of America

Some recommendations for adapting QOL instruments to very young children and children with ID

Different studies have proved that these children are capable of giving a reliable estimation of their QOL and expressing their emotional states, which vary according to their experience or understanding of events in their daily life (Lemétayer & Gueffier, 2006). In the paediatric sector, self-assessment scales have been developed to measure the perception of pain in children without disability. Overall, authors state that from the age of 5 years, the cognitive abilities of children allow them to understand and agree to the formulated request (Stinson, Kavanagh, Yamada, Gill, & Stevens, 2006). Nevertheless, certain developmental characteristics must be taken into account to adapt the questionnaires to their abilities (Matza et al., 2004). Before the age of 7 years, children have limited abilities in reading and writing that can compromise their self-assessment (von Baeyer, Forsyth, Stanford, Watson, & Chambers, 2009). Thus, it is advisable to use an external examiner to read and fill in the questionnaire (Ravens-Sieberer et al., 2014). Moreover, to limit all confusion about meaning, the formulation of the items must be as clear as possible and the mode of questioning must involve no ambiguity, with no negative interrogative forms (Eiser & Morse, 2001). Concerning the format of questionnaires, Likert scales are very often used to assess pain intensity. Skills in the counting, seriation, and classification of numbers are required to discriminate between the different answers proposed. Before 7 years, these abilities are not yet mastered and children tend to deal with the choice of items in a dichotomic way (Chambers & Johnston, 2002). In contrast, the scales of drawn faces seem more adapted as the images represent the different choices of answers. It also appears that rounded shapes are dealt with better than square or rectangular ones. Thus, from the age of 4 years, children succeed in giving precise and valid answers (von Baeyer et al., 2009).

The aim of this study was to validate our adaptation of the abbreviated form of the MSLSS for children without disability and children with ID aged from 5 to 11 years. First, the mode of administration and the format of the items of the questionnaire were modified in order to adapt them to the abilities of the children questioned. A French translation was also carried out. Second, the multidimensional model of the abbreviated version was tested using confirmatory analyses before examining the internal consistency, temporal stability, and convergent and divergent validities of this scale. Differential analyses were also carried out to highlight interindividual differences in terms of gender, age, and child group (children without disability vs. children with ID). According to the literature, girls should say they have a better life satisfaction in the school domain compared to boys (Kong, 2008); with increasing age, the peer relationships of children tend to develop more widely. New preoccupations with their self-esteem and their physical appearance also emerge (Harter, 1989). Thus, compared to the youngest children, older children should be more satisfied with their peer relationships and less satisfied in the "self" domain. Lastly, regardless of the degree of disability, every child with impairments sees their QOL and wellbeing decrease (Fattal & Leblond, 2005). Consequently, children with ID should assess their overall life satisfaction and in the different domains of their life more negatively than children without disability, regardless of their age and gender.

Method

Research design

Data for this cross-sectional study was collected in 2014 and 2015 by trained graduate students. Only children without disability and children with mild/moderate ID aged 5 to 11 years who had been diagnosed by a paediatrician, a psychologist, and health professionals were included in the study.

Ethical procedures

Elementary school principals and primary caregivers of the participating children gave their written informed consent to the research team, and were assured that the data collected in the study would be kept confidential. The parents then received a letter explaining the study accompanied by a consent form. This was to be completed and signed by parents and the child to confirm their agreement. This research was conducted in accordance with the Code of Ethics of Psychologists (Groupe Interorganisationnel pour la Réglementation de la Déontologie des Psychologues, 2012).

Participants

Four hundred and eleven children aged from 5 to 11 years ($M = 8.25$ years, $SD = 1.707$) participated in the study. They attended 15 French schools, half of them situated in an urban zone and the other half in a rural zone. The first group was composed of 340 children without disability (167 girls and 173 boys) attending the French equivalents of kindergarten to Grade 6. Their mean age was 8.03 years ($SD = 1.71$). A second group constituted 71 children (29 girls and 42 boys)

with mild/moderate ID[1] attending either a regular school in a regular class or Classe d'Inclusion Scolaire[2] (CLIS 1) or a specialised institution. Their mean age was 9.25 years ($SD = 1.284$). Among these children, 53 had no associated disability (77.9%), 14 had a physical disability associated with ID (20.4%), and one child also had symptoms characteristic of autism spectrum disorder (1.7%). Concerning age, there was a significant difference between the children without disability and the children with ID, $\chi^2(6,411) = 41.163$, $p < .001$, and concerning the socioeconomic characteristics[3] of their families; a more disadvantaged social origin was observed for families of children with ID, $\chi^2(2,355) = 22.663$, $p < .001$. These different demographic characteristics are reported in Table 2.

Measures

The abbreviated form of the MSLSS was translated into French using a forward and backward translation procedure (Guillemin, Bombardier, & Beaton, 1993). This scale was designed to assess the life satisfaction of children without disability and children with ID aged from 5 to 11 years. To do this, a multidimensional assessment was carried out to measure life satisfaction in general and in the specific domains of their life: family, school, friends, living environment, and self. The questionnaire includes 30 items formulated in affirmative sentences (see Appendix).

Table 2. Sociodemographic characteristics of the participants.

Variables	Number % Without ID		Number % ID	
Participants	340	82.7	71	17.3
Gender				
Girls	167	49.1	29	40.8
Boys	173	50.9	42	59.2
Age of the group				
Less than 8 years	136	40	22	31
More than 8 years	204	60	49	69
Type of schooling				
Kindergarten	36	10.6	0	0
Grade 1	70	20.6	2	2.8
Grade 2	30	8.8	0	0
Grade 3	75	22.1	2	2.8
Grade 4	63	18.5	0	0
Grade 6	66	19.4	1	1.4
CLIS 1	–	–	41	57.8
Specialised institutions	–	–	25	35.2
Disability associated with the ID[a]				
None	–	–	53	77.9
Physical disability	–	–	14	20.4
Autism spectrum disorder	–	–	1	1.7
Social background[a]				
Privileged	105	36.3	5	7.6
Average	133	46	39	59.1
Disadvantaged	73	17.7	22	33.3
Marital status of the family[a]				
Married, civil partnership	230	73.5	53	75.7
Divorced, separated	83	26.5	18	24.3

Note. Without ID = without intellectual disability; ID = intellectual disability.
[a]Some data are missing because some parents did not provide them.

By referring to recent weeks, the children had to assess their degree of satisfaction related to the different domains of their life. They had to choose from several responses the one that corresponded most to what they felt concerning each domain of their life. For each item, children had to assess their level of agreement on a continuum ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

The "child" and "parent" forms of the Positive and Negative Affect Schedule (PANAS) were also administered in their abbreviated form (Ebesutani et al., 2012) in order to check the convergent validity of the abbreviated form of the MSLSS. For each version, the PANAS assessed the positive and negative affectivity of children through 10 items. By referring to recent weeks, the child was asked how he or she felt in general. For each item, the notation was on a continuum ranging from 1 (*not at all*) to 5 (*extremely*). The two-factor structure of this scale was confirmed by confirmatory analyses for the PANAS child and parent forms.[4]

Procedure

For all children, three example items were given at the beginning of each questionnaire in order to familiarise them with the task.

For children older than 8 years ($n = 204$), the questionnaires were completed individually in class over about 45 minutes. For the very young children ($n = 136$) and the children with ID ($n = 71$), the tests were carried out in a dual situation (experimenter/child) for about thirty minutes. The examiner read the items aloud and filled the questionnaires. This took place in a room isolated from the rest of the class for the children attending an ordinary school, or outside their life group in a "neutral" place (different from where they received their therapeutic care) for the children attending institutions or in a CLIS or a regular class. Visual supports adapted to each questionnaire were also designed to help the children choose their answers.[5] For the MSLSS, the Likert-type scale with six degrees of agreement was represented by two distinct visual supports, each illustrating three answers. Each support represented three smiley faces in different colours of increasing size. The first illustrated the three degrees of agreement and the second presented the three degrees of disagreement. For the PANAS, the emotional frequency was represented in the same format by round shapes of increasing size coloured in darkening shades of green ranging from *not at all* to *extremely*. In addition, the children did a drawing in the middle of the MSLSS after the 15th item so that they could renew their attention afterwards.

Lastly, the temporal stability of the children's answers was tested for 150 children (25 with ID and 125 without disability) after a 2-week interval.

Regarding the validation of the scale, confirmatory structural analyses were performed using IBM SPSS AMOS software. To estimate the quality of fit of the model observed with the initial theoretical model, four indices were used: the model chi-square statistic, the comparative fit index (CFI), the Tucker–Lewis index (TLI), and the root mean square residual (RMSEA). Ideally, a good fit is reflected by a nonsignificant chi-square and CFI and TLI values of approximately 0.90 or higher (Byrne, 2001). For the RMSEA, a value of about 0.06 or lower was preferred for the model fit to be considered good (Hu & Bentler, 1998). The internal consistency and test–retest reliability of the scale were also tested for each dimension of the questionnaire by computing Cronbach's alpha and correlation coefficients. For each of these indices, a value of 0.70 is generally considered sufficient to demonstrate internal consistency and temporal stability (Nunnally & Bernstein, 1994). In addition, to test the divergent and convergent validity, the correlations between the abbreviated form of the MSLSS and both child positive and negative affectivity were analysed with regard to the criteria defined by Cohen (1992). A correlation is considered weak if its absolute value is less than 0.30, moderate if it lies between 0.30 and 0.50, and strong if it is higher than 0.50. Finally, the effects of age, gender, family structure, and child group (children without disability vs. children with ID) on overall life satisfaction and in the different life domains of the children questioned were examined using multivariate analyses of variance.

Table 3. Descriptive data per item of the abbreviated form of the MSLSS.

	M	SD	Skewness	Kurtosis
Item 1	5	1.29	−1.52	1.76
Item 2	5.09	1.20	−1.54	1.99
Item 3	4.99	1.23	−1.31	1.20
Item 4	5.46	1.01	−2.25	5.11
Item 5	5.52	0.95	−2.48	6.58
Item 6	4.95	1.34	−1.29	0.83
Item 7	4.88	1.39	−1.34	1.14
Item 8	5.02	1.36	−1.47	1.45
Item 9	4.64	1.52	−1.03	0.01
Item 10	5.31	1.21	−2.05	3.58
Item 11	4.84	1.48	−1.21	0.44
Item 12	4.72	1.53	−1.12	0.15
Item 13	4.94	1.20	−1.18	0.92
Item 14	5.59	0.82	−2.50	7.12
Item 15	4.62	1.55	−1.08	0.09
Item 16	4.88	1.52	−1.40	0.92
Item 17	5.46	1.08	−2.36	5.18
Item 18	4.98	1.39	−1.51	1.53
Item 19	5.10	1.31	−1.61	1.92
Item 20	4.96	1.35	−1.45	1.44
Item 21	4.69	1.47	−1.13	0.36
Item 22	5.18	1.27	−1.73	2.33
Item 23	5.17	1.24	−1.63	2.03
Item 24	4.90	1.55	−1.37	0.74
Item 25	5.13	1.16	−1.66	2.68
Item 26	5.36	1.17	−2.16	4.46
Item 27	5.20	1.36	−1.92	2.84
Item 28	4.46	1.77	−0.86	−0.67
Item 29	4.82	1.65	−1.23	0.15
Item 30	5.18	1.37	−1.74	2.03

Note. MSLSS = Multidimensional Student's Life Satisfaction Scale.

Results

Descriptive statistics

The distributions of the scores obtained for the different items by all the children did not follow a normal distribution (see Table 3). As a result, a logarithmic transformation of these different variables was carried out in order to stabilise the variance and normalise the distributions presenting a positive skewness. After this recoding, the maximum likelihood procedure was applied to test the factorial structure of the scale and for all subsequent analyses (Tabachnick & Fidell, 2012).

Factorial structure

In line with the initial model, a model with five first-order factors corresponding to the five dimensions of life satisfaction and a second-order factor related to global life satisfaction was tested. The values obtained for the different fit indices in this first model suggested that it did not fit well the observed data. Thus, the residual variance matrices were examined in order to carry out the adjustments needed so that the model would fit the data well (Byrne, 2001). This analysis suggested adding covariances between the residual variances of Items 5 and 17, 15 and 22, 2 and 3, 7 and 10. It also highlighted a link between the latent variable "Friends" and the manifest variable of Item 2: "I am fun to be around." Regarding the conceptual similarities between these items or with the dimension "Friends" for Item 2, the modifications made to the model seemed consistent. When this second model was tested, all the items of the questionnaire had a saturation higher than 0.30 (see Table 4).

Moreover, the fit indices obtained were clearly better and showed that the model fitted the data collected to assess the life satisfaction of children: $\chi^2(395) = 705.340$; $p < .001$; CFI = 0.911; TLI = 0.902; RMSEA = 0.044 (see Figure 1).

Internal consistency and test–retest reliability

Concerning the internal consistency for the whole scale, Cronbach's alpha was equal to 0.87 for the children

Table 4. Factorial weights of the items of the abbreviated form of the MSLSS.

	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Item 1	0.70				
Item 8	0.80				
Item 9	0.62				
Item 12	0.74				
Item 22	0.67				
Item 29	0.53				
Item 4		0.41			
Item 16		0.75			
Item 18		0.79			
Item 19		0.78			
Item 20		0.58			
Item 5			0.44		
Item 6			0.50		
Item 14			0.55		
Item 15			0.54		
Item 17			0.54		
Item 21			0.54		
Item 23			0.62		
Item 11				0.52	
Item 24				0.65	
Item 27				0.56	
Item 28				0.40	
Item 30				0.75	
Item 2					0.32
Item 3					0.39
Item 7					0.49
Item 10					0.55
Item 13					0.59
Item 25					0.66
Item 26					0.39

Note. MSLSS = Multidimensional Student's Life Satisfaction Scale.

without disability and 0.88 for the children with ID. In addition, the coefficients obtained for the five dimensions of life satisfaction for all the children, distinguishing them according to their age bracket and their group of belonging, were all higher than or equal to 0.70.

However, the results showed a moderate temporal stability calculated after a 2-week interval. Although the test–retest reliability coefficients were all significant, they were less than the threshold of 0.70 for all the dimensions of life satisfaction of the children without disability. Nevertheless, a better temporal stability was found for the children with ID, with only two dimensions whose correlation coefficients were lower than 0.70. These various results are presented in Table 5.

Convergent and discriminant validities

First, for the assessment carried out by both the children without disability and the children with ID, their positive and negative affectivity scores were significantly correlated with overall life satisfaction and in the different life domains. The negative affectivity scores obtained with the PANAS child form seemed significantly and negatively correlated with life satisfaction for all the dimensions. The correlations were weak to moderate (0.18–0.40). These results were lower than the correlations obtained between the positive affectivity measured by the children and their life satisfaction (0.23–0.60). However, the correlations appeared nonsignificant for almost all the dimensions of the life satisfaction of children, whether it was the positive or negative affectivity assessed by the parents of children without disability or those with ID (see Table 6).

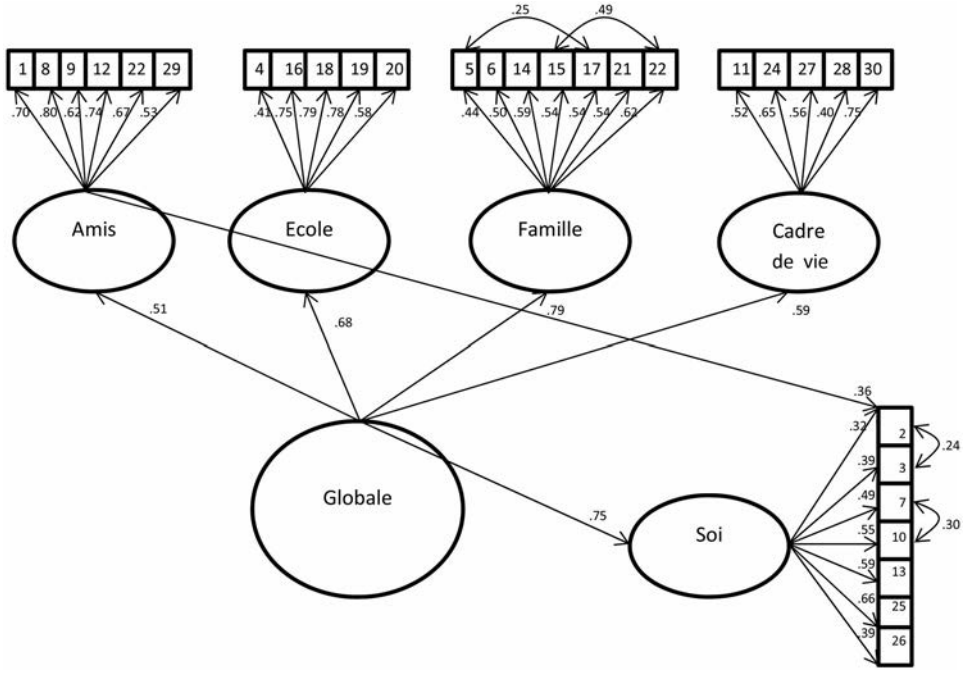

Figure 1. Confirmatory structural analysis diagram of the abbreviated form of the MSLSS.

Table 5. Coefficients of internal consistency and test–retest reliability of the abbreviated form of the MSLSS.

	Cronbach's *a*			Correlation coefficients		
	Without ID All	Without ID < 8 years	ID	Without ID All	Without ID < 8 years	ID
Friends	0.83	0.79	0.76	0.60**	0.58**	0.77**
School	0.77	0.70	0.87	0.50**	0.48**	0.71**
Family	0.76	0.73	0.70	0.56**	0.68**	0.81**
Environment	0.71	0.70	0.70	0.48**	0.59**	0.60**
Self	0.72	0.70	0.71	0.48**	0.46**	0.59**
Overall	0.87	0.84	0.88	0.65**	0.68**	0.82**

Note. MSLSS = Multidimensional Student's Life Satisfaction Scale.
**$p < .01$.

Table 6. Relationships between the abbreviated form of the MSLSS and the PANAS child and parent forms.

	Correlation coefficients							
	PANAS-C (Child)				PANAS-CP (Parent)			
	Positive affectivity		Negative affectivity		Positive affectivity		Negative affectivity	
	Without ID[a]	ID[b]	Without ID[a]	ID[b]	Without ID[a]	ID[b]	Without ID[a]	ID[b]
School	0.35**	0.54**	−0.21**	−0.22**	0.06	0.13	0.02	−0.18
Friends	0.23**	0.35**	−0.25**	−0.40**	0.03	0.01	0.09	−0.15
Family	0.30**	0.30**	−0.19**	−0.27**	0.13*	−0.02	−0.20	−0.19
Environment	0.25**	0.45**	−0.18*	−0.10	0.04	0.01	−0.01	−0.08
Self	0.41**	0.53**	−0.18**	−0.28**	0.11	−0.13	0.01	0.06
Overall	0.43**	0.60**	−0.30**	−0.25**	0.103	0.02	0.03	−0.16

Note. MSLSS = Multidimensional Student's Life Satisfaction Scale; PANAS = Positive and Negative Affect Schedule.
[a]$n = 340$.
[b]$n = 71$.
*$p < .05$.
**$p < .01$.

Differential analyses

First, the analyses revealed a main effect of gender on the dimension "School," $F(1, 409) = 9.225$, $p < .010$, $\eta^2 = 0.022$. On average, girls reported higher school satisfaction ($M = 5.24$, $SD = 0.072$) compared to boys ($M = 4.94$, $SD = 0.069$). In addition, a significant effect of child appeared for the "Friends," $F(1, 409) = 4.450$, $p < .050$, $\eta^2 = 0.011$, and "Self," $F(1, 409) = 16.321$, $p < .001$, $\eta^2 = 0.038$, dimensions. The children younger than 8 years described themselves as more satisfied in the Self domain ($M = 5.27$, $SD = 0.060$) compared to those older than 8 years ($M = 5.01$, $SD = 0.049$). In contrast, the latter tended to describe themselves as more satisfied with their peer relationships ($M = 4.98$, $SD = 0.071$) compared to younger children ($M = 4.74$, $SD = 0.086$). Furthermore, the results revealed no effect of family structure on the different dimensions of children's life satisfaction (see Table 7).

On the other hand, after controlling for the effects of gender, social background, and the age of children, differences in QOL scores between children without disability and children with ID were observed in four domains of life satisfaction: School, $F(1, 350) = 4.285$, $p < .010$, $\eta^2 = 0.012$, Friends, $F(1, 350) = 27.411$, $p < .001$, $\eta^2 = 0.092$, Family, $F(1, 350) = 9.840$, $p < .050$, $\eta^2 = 0.036$, and overall life satisfaction, $F(1, 340) = 12.401$, $p < .010$, $\eta^2 = 0.039$.

Overall, the children with ID thus appeared less satisfied with their life ($M = 4.770$, $SD = 0.079$) than children without disability ($M = 5.081$, $SD = 0.037$). Moreover, they described their relationships with their peers ($M = 4.290$, $SD = 0.16$) and their family ($M = 4.851$, $SD = 0.098$) more negatively compared to children without disability (Friends: $M = 5.027$, $SD = 0.059$; Family: $M = 5.195$, $SD = 0.046$). Children with ID also reported higher school satisfaction ($M = 4.826$, $SD = 0.128$) than children without disability ($M = 5.12$, $SD = 0.059$). Finally, the analyses revealed an interaction effect between child age and child group for the dimension Self, $F(1, 355) = 7.331$, $p < .010$, $\eta^2 = 0.021$. Although the children without disability said they were more satisfied in the Self domain before 8 years old ($M = 5.34$, $SD = 0.064$), conversely, with increasing age the children with ID reported a higher satisfaction with themselves (under 8 years old: $M = 4.829$, $SD = 0.156$; over 8 years old: $M = 5.048$, $SD = 0.108$; see Table 8).

Discussion

Consistent with the results obtained with the original version of the MSLSS, the confirmatory analyses conducted in this study confirmed its multifactorial structure with five first-order factors and one second-order

Table 7. Effects of gender, age, and family structure on all the dimensions of the life satisfaction of children.

	df	*F*	*p*	Partial eta^2
School				
Gender	(1, 409)	9.225	0.003	0.022
Age	(1, 409)	1.125	0.289	0.003
Family structure	(1, 381)	0.368	0.545	0.001
Age × Gender	(1, 353)	2.170	0.142	0.007
Age × Family structure	(1, 353)	0.004	0.949	0.001
Gender × Family structure	(2, 353)	0.155	0.857	0.001
Family				
Gender	(1, 409)	0.968	0.326	0.002
Age	(1, 409)	2.483	0.116	0.006
Family structure	(1, 381)	0.277	0.599	0.001
Age × Gender	(1, 353)	2.097	0.147	0.006
Age × Family structure	(1, 353)	0.098	0.148	0.006
Gender × Family structure	(2, 353)	0.413	0.662	0.003
Friends				
Gender	(1, 409)	0.001	0.971	0.000
Age	(1, 409)	4.450	0.036	0.011
Family structure	(1, 381)	0.393	0.531	0.001
Age × Gender	(1, 353)	0.472	0.512	0.001
Age × Family structure	(1, 353)	0.075	0.785	0.001
Gender × Family structure	(2, 353)	0.413	0.662	0.003
Living environment				
Gender	(1, 409)	0.211	0.646	0.001
Age	(1, 409)	1.501	0.220	0.004
Family structure	(1, 381)	2.485	0.116	0.006
Age × Gender	(1, 353)	0.028	0.867	0.001
Age × Family structure	(1, 353)	0.030	0.863	0.001
Gender × Family structure	(2, 353)	0.432	0.650	0.003
Self				
Gender	(1, 409)	2.017	0.156	0.005
Age	(1, 409)	16.32	0.001	0.038
Family structure	(1, 381)	1.461	0.227	0.004
Age × Gender	(1, 353)	1.724	0.190	0.005
Age × Family structure	(1, 353)	1.674	0.197	0.005
Gender × Family structure	(2, 353)	0.062	0.940	0.001
Overall life satisfaction				
Gender	(1, 409)	2.776	0.096	0.007
Age	(1, 409)	0.321	0.571	0.001
Family structure	(1, 381)	0.867	0.352	0.002
Age × Gender	(1, 353)	2.763	0.097	0.008
Age × Family structure	(1, 353)	0.226	0.635	0.001
Gender × Family structure	(2, 353)	0.180	0.832	0.001

Table 8. Effect of child group (children without disability vs. children with ID) on the dimensions of the abbreviated form of the MSLSS after controlling for effects of gender, age, and social background.

	df	*F*	*p*	Partial eta^2
School				
Group	(1, 350)	4.285	0.007	0.012
Group × Age	(1, 350)	0.815	0.367	0.002
Group × Gender	(1, 350)	0.141	0.708	0.001
Group × Social background	(1, 350)	1.821	0.163	0.011
Family				
Group	(1, 350)	9.840	0.011	0.036
Group × Age	(1, 350)	0.118	0.732	0.001
Group × Gender	(1, 350)	2.120	0.146	0.001
Group × Social background	(1, 350)	0.325	0.723	0.002
Friends				
Group	(1, 350)	27.411	0.001	0.092
Group × Age	(1, 350)	0.244	0.621	0.001
Group × Gender	(1, 350)	0.234	0.629	0.001
Group × Social background	(1, 350)	0.417	0.659	0.003
Living environment				
Group	(1, 350)	0.051	0.936	0.002
Group × Age	(1, 350)	0.686	0.408	0.002
Group × Gender	(1, 350)	1.022	0.313	0.003
Group × Social background	(1, 350)	0.315	0.730	0.002
Self				
Group	(1, 350)	2.089	0.004	0.042
Group × Age	(1, 350)	7.331	0.007	0.021
Group × Gender	(1, 350)	0.005	9.42	0.001
Group × Social background	(1, 350)	0.024	0.536	0.004
Overall life satisfaction				
Group	(1, 350)	12.401	0.008	0.039
Group × Age	(1, 350)	0.342	0.349	0.003
Group × Gender	(1, 350)	0.002	0.961	0.001
Group × Social background	(1, 350)	0.892	0.411	0.005

Note. ID = intellectual disability; MSLSS = Multidimensional Student's Life Satisfaction Scale.

factor. In comparison with the original form of Huebner et al. (2012), only one modification was made to the model: A link was added between the latent variable Friends and the manifest variable corresponding to Item 2 ("I am fun to be around"). Very good levels of internal consistency were obtained for both children with and without ID. The values obtained for the five dimensions of life satisfaction for all the children, distinguishing them according to age and ID, were all higher than or equal to 0.70 (from 0.70 to 0.88). These coefficients are similar to those reported for the original version, with coefficients ranging from 0.71 (Self) to 0.91 (Family; Huebner et al., 2012). However, the test–retest coefficients calculated after a 2-week interval highlighted a moderate to weak temporal stability, which seemed more pronounced in children with ID. The test–retest reliability was not assessed in the validation study of the abbreviated form of the MSLSS (Huebner et al., 2012). Nonetheless, Diener (2009) underlined the temporal variability found with scales assessing subjective wellbeing. Unlike objective assessments, these instruments are more sensitive to the events experienced by the people questioned. These results may also be explained by the effect of age and ID on the reliability and reproducibility of children's responses. Various authors emphasise that self-report scales might introduce some bias in the responses of very young children or children with ID (Rodary et al., 2001) due to a tendency to acquiescence, social desirability, and difficulties in assessing the subjective aspects of their life (Fattal & Leblond, 2005; Hodgkinson, d'Anjou, Dazord, & Berard, 2002; Martin-Laval, 1992). Young children (before the age of 8 years) and children with ID may have problems understanding and interpreting the questions because of their language as well as their general cognitive ability (Ravens-Sieberer et al., 2006). In addition, some research shows that young children (Chambers & Johnston, 2002) and children with ID (Hartley & MacLean, 2006) may have difficulty in answering questions using Likert scales. The latter have a tendency to choose the most positive alternative in this response format, which requires the complex task of distinguishing subtle differences in responses (Chambers & Johnston, 2002; Hartley &

MacLean, 2006). To correct this bias, authors suggest reducing the Likert scale to 5 points maximum (Hartley & MacLean, 2006). The use of pictorial representations can also help children distinguish the response degrees (Zabalia & Corfec, 2008). In this study, we chose to keep the 6-point Likert scale format of the original version of the MSLSS to avoid reducing the sensitivity of the instrument. However, these were represented by two distinct visual supports each illustrating three response choices. Each support represented three smiley faces in different colours and of increasing size. Despite these adaptations, children may have had difficulties in differentiating the smiley faces. Changes in colour and size may have functioned as confounding variables.

On the other hand, the correlation coefficients calculated between the scores of affectivity and the life satisfaction of children confirmed the convergent and discriminant validities of this scale. The significant relationships revealed between self-assessment of affectivity and all the dimensions of life satisfaction confirm the results previously obtained with adults and children aged over 11 years (Diener, 2012). These results suggest that the positive and negative affects felt by very young children or children with ID also contribute to their QOL and their subjective wellbeing (Diener, 2012). However, compared to the relationship between positive affectivity assessed by the children and their life satisfaction, a weaker link was observed between negative affectivity and life satisfaction. These results confirm those of Huebner and Dew (1996), who found a weaker relationship between global life satisfaction and negative affectivity ($r = -0.27$) than positive affectivity ($r = 0.43$). Moreover, the absence of a link between the affectivity of children assessed by their parents and all the dimensions of their life satisfaction confirms the poor agreement between the assessments made by members of the child's family and by the children themselves. In fact, the appreciation of the QOL and wellbeing of children by intermediary assessors seems more faithful to the feelings of children concerning objective aspects than subjective aspects (Eiser & Morse, 2001).

The results of multivariate analyses also showed that the different dimensions of life satisfaction assessed with this scale discriminate quite clearly between the children. First, in accordance with the international literature, girls described themselves as more satisfied in the school domain than boys (Kong, 2008). On the other hand, the children over 8 years old assessed their life satisfaction in the domain of Self more negatively than the younger children, but they said they were more satisfied with their peer relationships. These results may be explained from a developmental perspective as, with increasing age, physical, emotional, social, and cognitive developments have repercussions on the different domains of children's lives. New preoccupations linked with physical appearance, social skills, and self-perception emerge (Harter, 1989). As a result, many authors note a decline in children's self-esteem (Deihl, Vicary, & Deike, 1997), which is strongly and positively correlated with the level of their life satisfaction (Huebner & Dew, 1996). In parallel, their friendships develop and evolve into new reciprocal friendships created *via* a trusting relationship (Poulin & Chan, 2010). These new connections lead to feelings of safety, which predict an increase in wellbeing and positive moods (Berndt, 2002). However, these results must be interpreted with caution. One factor that may explain the differences observed between typically developing children and children with ID is the type of schooling, which differed considerably across groups (regular school vs. CLIS 1 vs. specialised institutions). The context of schooling may have an impact on life satisfaction (Proctor, Linley, & Maltby, 2009). Thus, the validity of the comparison between children with and without ID appears to be limited.

Lastly, an effect of child group on the life satisfaction of children was observed. Compared to children without disability, the children with ID described themselves as less satisfied with their life in general as well as in the school, family, and friends domains. Regardless of the degree of impairment, all children with disability see their wellbeing diminished (Cousson-Gélie, 2013; Fattal & Leblond, 2005). The majority of works underline the isolation of children with disability and their social exclusion, which are the consequences of significant stigmatisation by their peers without disability (Nadeau & Tessier, 2003). Moreover, changes impact the professional practice of parents (often only one parent works in the couple), the rhythm of family life, and relationships with siblings, thus altering family relationships (Dobson, Middleton, & Beardsworth, 2001; Lopez, Clifford, Minnes, & Ouellette-Kuntz, 2008). Educational failure in these young people arouses feelings of personal inadequacy associated with the school domain (Ninot, Bilard, Delignières, & Sokolowski, 2000).

Finally, the preliminary results of this study show that our adaptation of the MSLSS presents satisfactory psychometric qualities. However, several limitations must be considered and further research is needed to ensure confidence in the use of this scale with younger children and children with ID living in France. First, due to the limited cognitive and language abilities of children with ID, it would be relevant to test the structural invariance of this scale according to child group. Our sample of children with ID was too small to carry out multigroup analyses and to determine whether the structure of the

questionnaire, the factorial weights, and the residual variances of the items can be considered invariant. Thus, following the procedure proposed by Byrne (2004), a larger sample of children with ID would allow us to test the structural invariance of the scale and to determine whether Huebner's model of QOL applies equally to children with and without ID. The hypothesis according to which the QOL of children with ID is composed of the same dimensions as children without disability (Magerotte, 2013; Schalock, 1993) could also be tested. Moreover, the temporal stability of the questionnaire is moderate. This could be explained by the fact that the younger children and children with ID had difficulties understanding the wording of some items and discriminating multiple response choices. As part of our future research, the wording of some items could be simplified to facilitate administration to children with ID. For example, Lunsky, Emery, and Benson (2002) suggest incorporating paraphrases and/or definitions of terms in the questionnaire. Other authors note that scenarios with dolls, puppets, and cuddly toys can be used to explain the items of questionnaires (Eiser, Cotter, Oades, Seamark, & Smith, 1999). To help children discriminate better the degrees of agreement, the representation of smiley faces could be modified. In fact, each visual support should represent smiley faces in a different colour gradient. For example, smiley faces corresponding to degrees of agreement could be represented by a gradation of green, whereas smiley faces referring to degrees of disagreement could appear in a red gradient. This new revised and simplified life satisfaction scale could then be tested with children with moderate to severe ID. Lastly, the predictive validity of the scale should be evaluated in a longitudinal study and the subscales should be validated. Self-esteem is recognised as a key determinant of QOL and mental health (Brown, 1998). Thus, it would be appropriate to study the relationships between the different dimensions of QOL and self-esteem of children.

In conclusion, despite these limitations, our adaptation of the abbreviated form of the MSLSS is the first self-assessment QOL instrument suitable for children as young as 5 years old and children with ID to be the subject of a validation study in a French-speaking population. This scale is of major interest for childhood professionals. It will enable them to assess the perception that children have of their wellbeing in important domains of their life, to take into account the specific needs of these children, and to promote their wellbeing. In addition, this scale provides researchers in psychology with the opportunity to enrich their knowledge on the wellbeing of children with ID and to respond to political and governmental legislation related to the United Nations Convention on the Rights of the Child (United Nations, 1989), and the recommendations of the OCDE (2009), which give a particular impetus to awareness and improvement of the wellbeing of children.

Notes

1. According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-5*; American Psychiatric Association, 2013), ID is a disorder with onset during the developmental period that includes both intellectual and adaptive functioning deficits in conceptual, social, and practical domains.
2. *CLIS 1* are classes for children aged 7 to 12 years with significant problems in cognitive functions. They enable pupils with disability to follow a curriculum in an ordinary school in a specialised class of no more than 12 children. The appropriate physical adaptations and teaching materials are provided according to the age, disability, and capacities of each child.
3. Social categories determined according to the grid used in surveys by the French Direction de l'Evaluation de la Prospective et de la Performance (DEPP; Evaluation, Forecasting and Performance Department) of the Ministry of National Education, based on the socio-professional category of the reference person of the family or the father.
4. The fit of the model for the data collected with the child form were: $\chi^2(33) = 66.34$, $p < .001$; RMSEA = 0.050; CFI = 0.939; TLI = 0.917; internal consistency: positive affectivity = 0.57 and negative affectivity = 0.65; and the parent form, $\chi^2(31) = 66.68$, $p < .001$; RMSEA = 0.056; CFI = 0.946; TLI = 0.927; internal consistency: positive affectivity = 0.71 and negative affectivity = 0.66.
5. Visual supports are available upon request by contacting the first author.

Disclosure statement

No potential conflict of interest was reported by the authors.

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Appendix 1. List of items of the francophone adaptation of the abbreviated form of the MSLSS.

Items of the multidimensional scale of life satisfaction by dimension
1. Mes amis sont gentils avec moi (My friends are nice to me)
2. On s'amuse bien avec moi (I am fun to be around)
3. Il y a beaucoup de choses que je peux bien faire (There are lots of things I can do well)
4. J'apprends beaucoup de choses à l'école (I learn a lot at school)
5. J'aime passer du temps avec mes parents (I like spending time with my parents)
6. Ma famille est mieux que la plupart des autres (My family is better than most)
7. Je pense que je suis beau/belle (I think I am good-looking)
8. Mes amis sont supers (My friends are great)
9. Mes amis m'aideront si j'en ai besoin (My friends will help me if I need it)
10. Je m'aime bien (I like myself)
11. Il y a pleins de choses amusantes à faire où j'habite (There are lots of fun things to do where I live)
12. Mes amis me traitent bien (My friends treat me well)
13. La plupart des gens m'aiment bien (Most people like me)
14. J'aime être à la maison avec ma famille (I enjoy being at home with my family)
15. Les membres de ma famille s'entendent bien ensemble (My family gets along well together)
16. Je suis content d'aller à l'école (I look forward to going to school)
17. Mes parents me traitent bien (My parents treat me fairly)
18. Je me sens bien à l'école (I like being in school)
19. L'école est intéressante (School is interesting)
20. J'aime les activités proposées à l'école (I enjoy school activities)
21. Les membres de ma famille se parlent gentiment les uns aux autres (Members of my family talk nicely to one another)
22. Je m'amuse beaucoup avec mes amis (I have a lot of fun with my friends)
23. Je fais des choses amusantes avec ma famille (My parents and I do fun things together)
24. J'aime mon quartier (I like my neighbourhood)
25. Je suis une personne agréable (I am a nice person)
26. J'aime essayer faire de nouvelles choses (I like to try new things)
27. Ma maison est agréable (My family's house is nice)
28. J'aime mes voisins (I like my neighbours)
29. J'ai assez d'amis (I have enough friends)
30. J'aime où je vis (I like where I live)