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The Best Interests of The Child Self-Report (BIC-S): Psychometric Properties of the Adapted Version of the BIC-S used as a Monitoring Instrument to Measure the Quality of The Children’s Rearing Environment From a Children’s Rights Perspective

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Abstract

Background In line with the legal duty to monitor the compliance of policy and practice with the Convention on the Rights of the Child, the Netherlands’ Ombudsman for Children collects data concerning children’s views about their rearing environment and well-being. This Children’s Rights Monitor uses the Best Interests of the Child Self-Report (BIC-S). The psychometric properties of the BIC-S need to be further investigated.

Method For the 2018 Children’s Rights Monitor, 1639 children (age: $M=12.05$ $SD=2.70$) completed the BIC-S (quality of rearing environment) and value their life on a scale of 1 to 10 (well-being). Mokken Scale Analysis was applied to determine the construct validity, and a Pearson correlation coefficient between well-being and the quality of rearing environment was used to determine the convergent validity of the BIC-S.

Results The results of the Mokken Scale Analysis reveal an invariant, strong, and reliable family scale ($H=0.60$; $Rho=0.88$) and an invariant, moderate, and reliable society scale ($H=0.45$; $Rho=0.81$). Two conditions (safe wider physical environment and adequate examples in society) should be viewed as separate items. Strong and significant correlations are observed between well-being, on the one hand, and the family and society scales on the other (respectively, $r=0.54$ and 0.63).

Implications Results of this study point to a reliable and valid BIC-S for measuring the quality of the rearing environment. This instrument can be used to bring policy, practice, and decision-making in line with Children’s Rights.

Keywords Children’s rights · Best interests of the child · Voice of children · Participation · Questionnaire

1 Introduction

Policy adopted by governments and public authorities affects the lives of children. Decision-making based on policies that affect children should therefore integrate the children's best interests. This Best Interests of the Child principle is laid down in Article 3, sub. 1 of the UN *Convention on the Rights of the Child*: 'in all actions concerning children, whether undertaken by public or private social welfare institutions, courts of law, administrative authorities or legislative bodies, the best interests of the child shall be a primary consideration' (UNCRC, 1989). Article 3, sub. 1 can be seen as one of the main principles of the *Convention* (Detrick, 1999): if decisions are taken in the best interests of the child, then the other provisions of the *Convention* should also be complied with. The UN Committee on the Rights of the Child (2013) states in General Comment No. 14 that the views of children (Art. 12 UNCRC, 1989) should be taken into account in determining the Best Interests of the Child. Adjustments to the children's rights view, and especially giving a voice to children, are increasingly common in individual cases of decision-making in child welfare and child protection services (Gallagher et al., 2012; Kennan et al., 2018; Van Bijleveld et al., 2015), residential care (Authors, 2018), and physical and mental healthcare (Cheng et al., 2017). However, children's opinions on their best interests should also be investigated in order to bring local and national governmental policy affecting the lives of children in line with the best interests of the child.

A valid questionnaire in which children are invited to express their views concerning their best interests is currently lacking. To our knowledge, existing valid questionnaires are limited to evaluating the process of children's participation in policy and decision-making (Amini et al., 2017; O'Hare et al., 2016; Rosenberg et al., 2010). To fill the gap, a questionnaire was developed from a behavioural scientific perspective, based on the theoretical framework of the Best Interests of the Child (BIC) model (Authors, 2006, 2012, 2018). Using an ecological holistic approach to children's development (Belksy & Vondra, 1989; Bronfenbrenner 1979; Van Der Ploeg, 2007), the BIC model defines how to interpret the best interests of the child principle based on the fundamental rights of children (Art. 6 UNCRC, 1989). The key assumption of the BIC model is that a decision in favour of a rearing environment that meet the developmental needs of the child (Art. 6 UNCRC, 1989) is taken in the best interests of the child (Art. 3 UNCRC, 1989). Children need a rearing environment that provides opportunities for optimal development (Authors, 2006, 2012). The BIC model is based on an extensive literature review and includes 14 conditions in a rearing environment for optimal development. These conditions are distributed across two dimensions: family and society. The conditions in the family dimension are: (1) adequate physical care, (2) safe direct physical environment, (3) affective atmosphere, (4) supportive, flexible child-rearing structure, (5) adequate example from parents, (6) interest, (7) continuity in upbringing conditions and future perspective. The conditions in the society dimension are: (8) safe wider physical environment, (9) respect, (10) social network, 11. education, 12. contact with peers, 13. adequate examples in society, 14. stability in life circumstances and future perspective. The continuity (7) and stability (14) conditions focus on their presence in the past, the present, and the

Family

1. *Adequate physical care.* Adequate physical care refers to the care for the child's health and physical well-being by parents or care-providers. They offer the child a place to live, clothing to wear, enough food to eat and (some) personal belongings. There is a family income to provide for all this. In addition, the parents or care-providers are free of worries about providing for the child's physical well-being.
2. *Safe direct physical environment.* A safe direct physical environment offers the child physical protection. This implies the absence of physical danger in the house or neighbourhood in which the child lives. There are no toxics or other threats in the house or neighbourhood. The child is not threatened by abuse of any kind.
3. *Affective atmosphere.* An affective atmosphere implies that the parents or care-providers of the child offer the child emotional protection, support and understanding. There are bonds of attachment between the parent(s) or care-giver(s) and the child. There is a relationship of mutual affection.
4. *Supportive, flexible childrearing structure.* A supportive, flexible childrearing structure encompasses several aspects like: enough daily routine in the child's life; encouragement, stimulation and instruction to the child and the requirement of realistic demands; rules, limits, instructions and insight into the arguments for these rules; control of the child's behaviour; enough space for the child's own wishes and thoughts, enough freedom to experiment and to negotiate on what is important to the child; no more responsibilities than the child is capable of handling.
5. *Adequate example from parents.* The parents or care-providers offer the child the opportunity to incorporate their behaviour, values and cultural norms that are important, now and in the future.
6. *Interest in the child.* The parents or care-providers show interest in the activities and interests of the child and in his perception of the world.
7. *Continuity in upbringing conditions, future perspective.* The parents or care-providers care for the child and bring the child up in a way that attachment bonds develop. Basic trust is to be continued by the availability of the parents or care-providers to the child. The child experiences a future perspective.

Society

8. *Safe wider physical environment.* The neighbourhood the child grows up in is safe, as well as the society the child lives in. Criminality, (civil) wars, natural disasters, infectious diseases etc. do not threaten the development of the child.
9. *Respect.* The needs, wishes, feelings and desires of the child are taken seriously by the child's environment and the society the child lives in. There is no discrimination because of background, race or religion.
10. *Social network.* The child and his family have various sources of support in their environment upon which they can depend.
11. *Education.* The child receives a suitable education and has the opportunity to develop his personality and talents (e.g. sport or music).
12. *Contact with peers.* The child has opportunities to have contacts with other children in various situations suitable to his perception of the world and developmental age.
13. *Adequate examples in society.* The child is in contact with children and adults who are examples for current and future behaviour and who mediate the adaptation of important societal values and norms.
14. *Stability in life circumstances, future perspective.* The environment in which the child is brought up does not change suddenly and unexpectedly. There is continuity in life circumstances. Significant changes are prepared for and made comprehensible for the child. Persons with whom the child can identify and sources of support are constantly available to the child, as well as the possibility of developing relationships by means of a common language. Society offers the child opportunities and a future perspective.

Fig. 1 The Best Interests of the Child-Model

expected future, in contrast with the other conditions, which focus solely on the present. Figure 1 presents the definitions of the 14 conditions.

The Best Interests of the Child Self-Report questionnaire (BIC-S) was originally developed for children aged 11 and older in order to measure the quality of the 14 conditions of the BIC model from a child's perspective. The questions in the BIC-S

were constructed in collaboration with children in secure residential care (Authors, 2014, 2016). Thus, the initial explorative study on the psychometric properties of the BIC-S was focused on a small and specific targeted group, but the results were encouraging (Authors, 2018). Further research into the validity of the BIC-S was still needed. In the meantime, more research was done into the psychometric properties of the BIC-Questionnaire (BIC-Q) from the perspective of professionals (Authors, 2012, 2013, 2015, 2018, 2019). The BIC-Q proved to be a reliable scale for measuring the quality of the child-rearing environment (Authors, 2012, 2019), and the quality of the rearing environment also proved to be a predictor of social and emotional problems (Authors, 2013).

The BIC-S is one of the instruments used in the biennial Children's Rights Monitor of the Netherlands' Ombudsman for Children. With this Monitor, and as part of her legal duty to monitor the compliance of policy and practice with children's rights for all children in the Netherlands, the Netherlands' Ombudsman for Children investigates children's views on their rearing environment, well-being, and wishes for the future (Netherlands' Ombudsman for Children, 2018; Netherlands' Ombudsman for Children, 2016). The Ombudsman uses the outcomes of the Children's Rights Monitor in her recommendations for bringing governmental policy and decision-making in line with children's rights. The Children's Rights Monitor takes into account different key factors in the *process* of child participation and attempts to include children's views in decision-making. Children are first given information about a topic, on which they are then given the opportunity to express their views, and finally, these views are processed and used to influence policy and decision-making (Franklin & Sloper, 2005; Lundy, 2007; Vis et al., 2011).

Based on the recommendations of Authors (2018), the Netherlands' Ombudsman for Children adapted the BIC-S into an online questionnaire applicable for children aged 8 to 18 (Netherlands' Ombudsman for Children, 2016). Compared with the original version of the BIC-S, this questionnaire has fewer and simpler questions. The questionnaire was then tested during the 2016 Children's Rights Monitor, which led to an adapted BIC-S for children aged 8 to 18. The questions were first slightly simplified for children aged 8 to 12, and videos were added with an explanation of the questions. The adapted BIC-S complies with the elements of the best interests of the child assessment (United Nations Committee on the Rights of the Child, 2013) and was used in the 2018 Monitor (Netherlands' Ombudsman for Children, 2018).

Despite the use of the adapted BIC-S by the Ombudsman in the biennial Children's Rights Monitor, no comprehensive study has thus far been conducted on the psychometric properties of the questionnaire. A validated questionnaire will help to ensure that policy is developed in line with the best interests of the child (e.g. Vis et al., 2011). Therefore, the aim of this study was to determine the psychometric properties (construct validity and convergent validity) of the adapted BIC-S as used by the Netherlands' Ombudsman for Children in the Children's Rights Monitor, based on a sample of children growing up in a family setting in the Netherlands.

2 Method

2.1 Design

This study was based on a cross-sectional design, and the construct and convergent validity of the BIC-S was determined. The data were gathered in the 2018 Children's Rights Monitor by the Netherlands' Ombudsman for Children (Netherlands' Ombudsman, 2018), and the anonymous data were made available to the University of Groningen for scientific research purposes.

2.2 Participants

The target and study populations consist of all children in the Netherlands aged 8 to 18 living in a family setting (i.e. children living with biological, adoptive, and/or foster parents). We excluded children residing in asylum seeker centres (due to potential language problems) and children in out-of-home care. The sample consisted of 1639 children ($N=1639$). Most of the participants were girls ($n=913$; 55.7%), followed by boys ($n=710$; 43.3%), and 16 children identified as 'other', meaning neither boy nor girl ($n=16$; 1.0%). Most children were younger than 13 (66.1%; age: $M=12.05$; $SD=2.70$). A large majority (76.9%) lived with both parents, 6.5% were poor, 7.4% had severe problems at home, 4.1% suffered from a physical disease, 4.9% received youth care, 6.3% had divorced parents with serious problems (complex divorce), and 4% attended a special needs' school. Children who discontinued the questionnaire before they reached the BIC-S questions were excluded from the study.

2.3 Procedure

Data collection took place between 13 and 2018 and 3 November 2018. Children aged 8 to 18 living in the Netherlands were invited to fill in the online BIC-S as part of the Children's Rights Monitor. This invitation was disseminated via social and other media (Instagram, Facebook, Twitter, radio, magazines, and newspapers). As part of the 2018 Children's Rights Monitor, the Netherlands' Ombudsman for Children visited different types of services for children and their families, such as schools and child and family welfare organizations, and she also invited organizations to distribute the questionnaire among children. Before starting the questionnaire, participants were given information about the goals of the monitor, anonymity, and confidentiality of answers, data storage, and the use of the data for scientific purposes. Participants could stop filling in the questionnaire at any time.

Due to the legal mandate of the Netherlands' Ombudsman for Children to investigate the compliance of policy and decision-making with children's rights (Art. 11b National Ombudsperson Act, 2010), the informed consent of the parents of the participating children was not required (Art. 6, 9 Data Protection Act, 2018). Furthermore, because of the survey nature of the online data collection, asking for the consent of parents was not a reasonable option and, in the Children's Rights Monitor, the privacy of participants was not disproportionately affected (Art. 7:458 lid 3 BW).

2.4 Instruments and Variables

As part of the Children's Rights Monitor, children aged 8 to 18 were invited to answer the 14 BIC-S questions (see Appendix I for the BIC-S). This questionnaire measures children's perspective on the rearing environment. The questionnaire included 14 questions based on the 14 conditions identified in the BIC model (Authors, 2006). The scoring categories were unsatisfactory (1), moderate (2), satisfactory (3), and good (4). Additionally, information was collected about the children's personal and demographic characteristics and living circumstances, including age (how old are you?), gender (boy, girl, other), family composition (living with both parents, with only one parent), education (regular, special needs), financial problems (yes, no), problems at home (yes, no), physical problems (yes, no), receiving youth care (yes, no), and problematic divorce of parents (yes, no).

In order to gain insight into the general well-being of children, the Children's Rights Monitor also asks children to value their life on a scale of 1 to 10. For Dutch children, this scale is familiar because it is commonly used as a grading scale in education. There are also some open questions in the Children's Rights Monitor, but the children's answers to these questions are not included in this study.

2.5 Data Analysis

In item response models, it is assumed that both persons and items have positions on a latent trait (e.g. the existence of a trait that cannot be observed directly). In our study, the items were the 14 conditions, and the latent trait was the 'quality of the rearing environment'. In the Mokken model, it is assumed that item response functions are non-decreasing (called homogeneity). In our study, this means that the higher the 'quality of the rearing environment' of a certain child is, the higher the probability that the condition is positively scored. Another assumption is that item response functions do not intersect (double monotonicity). This means that if the probability of a positive response for one condition for a child with a certain position on the latent trait is higher than the probability of a positive response for another condition for that child, then this ordering in probabilities is also true for all children regardless of the positions of the children on the trait.

If these assumptions of the Mokken model (i.e. the items form a Mokken scale) are satisfied, the child's score on the scale can be estimated using the mean response score over all items. This mean score estimates the child's position on the latent trait of 'quality of the rearing environment'. The order of the popularities of the conditions (the mean scores per item over all children) estimates the order of the items on the latent trait. Conditions with high probabilities of positive responses can be regarded as 'easier' than conditions with lower probabilities. In this view, the order of the conditions on the latent scale is an ordering in difficulty.

There are certain criteria with which to check whether the data satisfy the assumptions of the Mokken model. One main criterion is the H-coefficient, which is based on the number of model violations for each pair of items compared to the expected number of violations under the condition that there is no relation between responses and the latent trait (e.g. the model of statistical independence). A model violation

occurs when, for a pair of conditions, the easiest condition has a lower score than the more difficult condition for a certain person. It has been proven that an H-coefficient for an item higher than or equal to zero indicates a non-decreasing item response function for that condition. An H-coefficient for the entire scale indicates the strength of the scale as a whole. An H-coefficient between 0.3 and 0.4 is considered to be a weak scale; an H-coefficient between 0.4 and 0.5 a moderately strong scale; and an H-coefficient higher than 0.5, a strong scale (see Sijtsma & Molenaar, 2000).

What are known as 'crit' statistics are diagnostic criteria that can be used to evaluate the non-decreasing property, the double monotonicity property, and the item invariant ordering across sub-groups (sample independence). These crit values are, roughly speaking, based on the number of model violations and the seriousness of the model violations. Crit values lower than 40 indicate that the scale meets the Mokken assumptions. A crit value higher than 80 indicates a violation of the assumptions, while crit values between 40 and 80 indicate that there is some doubt about whether the assumptions are satisfied. If there is no indication that the non-intersection assumption has been violated, the reliability of the Rho scale can be interpreted similarly to Cronbach's Alpha. A Rho between 60% and 80% is regarded as a low reliability scale. A Rho that is higher than 80% is interpreted as a reliable scale (Creswell, 2010).

With the help of MSP (version 5.0, a program for the Mokken scale analysis of polytomous items), a default search procedure (mainly based on the H-coefficient) was performed separately for both dimensions of the BIC model, each with seven conditions (i.e. family items 1 to 7 and society items 8 to 14). The scales obtained via this default search process were then checked against crit values indicating violations of non-intersections. Ultimately, only scales with both satisfactory H-coefficients and crit values on the check for non-intersection (guaranteeing the interpretation of Rho as reliable) were evaluated on sample independence for the different sub-groups of children. All of the sub-groups included in the study were based on the demographic and personal variables available for collection.

In order to evaluate the convergent validity of the BIC-S, we correlated the scores of the Mokken scales with the well-being score, ranging from 1 to 10, with the Pearson correlation coefficient. We expected to find a positive correlation between these measures. According to Cohen (1992), the effect size for the difference in standardized means is categorized as small if the difference in means is about 0.2, medium if it is about 0.5, and large if it is about 0.8 or higher.

If we found sample-independent scales (i.e. the crit values for invariant item ordering were smaller than 80), we assumed that the same scales (i.e. the same ordering of items) would hold for different sub-groups. In these cases, we used the t-test for independent groups to compare the mean scores of the quality of the rearing environment of different sub-groups. In order to determine the convergent validity, the results of these comparisons must be in line with our expectations. We expected that there were no differences in the experienced quality of the rearing environment between boys, girls, and other. Furthermore, we expected that the rearing environment would be less satisfactory for children growing up with one parent, children who experience financial or other problems at home, families who make use of youth care, families with divorced parents, and children attending a special needs school.

Table 1 Results of Mokken analysis for the family scale, following default search with check of crit values for non-intersection (N=1639)

<i>Item</i>	<i>Popularity</i>	<i>H-coefficient</i>
Interest (6)	3.66	0.62
Supportive, flexible child-rearing structure (4)	3.69	0.64
Adequate example from parent (5)	3.69	0.55
Affective atmosphere (3)	3.75	0.63
Safe direct physical environment (2)*	3.81	0.59
Continuity in upbringing conditions and future perspective (7)	3.82	0.58
Adequate physical care (1)	3.88	0.60
H=0.60; Rho=0.88		

* Condition with the highest crit value (22)

For children with physical problems, we also expected the quality of the rearing environment would be less satisfactory (Authors, 2012).

3 Results

3.1 Construction of the Family Scale

The default search procedure including the seven conditions of the family dimension revealed a strong ($H=0.60$) and reliable ($Rho=0.88$) scale for all seven items (see Table 1). The crit values were all lower than 40. The ‘interest’ condition was the most ‘difficult’, in the sense that the children responded, on average, the least positively on this item. The ‘adequate physical care’ item turned out to be the most positively assessed. Differences between popularities, however, were small. The assessment of all items was relatively high (higher than 3.5), from satisfactory to good.

3.2 Family Scale: Sample Independence

The family scale appeared to be invariant for all sub-groups (see Table 2). This means that the ordering of the items was similar for all sub-groups. The highest crit value for item invariant ordering was 44 and was observed in the sub-groups formed by gender. This relatively high crit value (still satisfactory) was mainly based on the ‘other’ sub-group and not on the sub-groups ‘boy’ and ‘girl’. The scales of all sub-groups were strong ($H \geq 0.50$) and reliable ($Rho \geq 0.84$).

3.3 Construction of the Society Scale

Table 3 presents the results of the default procedure for the society dimension. The scale consists of six (rather than seven) conditions: ‘safe wider physical environment’ was excluded from the scale because the default lower boundary for the H-coefficient was not met. The society scale was satisfactory but weaker and less reliable than the family scale ($H=0.45$; $Rho=0.81$). The highest crit value indicating violations on non-intersection was found for the ‘respect’ condition, at 42. Crit values on other

Table 2 Results of sample independence of sub-groups for the family scale

<i>Sub-groups</i>	<i>H</i> ¹	<i>Rho</i> (highest crit) ²	<i>Lowest H</i> (item _no) ³	<i>Highest crit</i> item invariance (item _no) ⁴
<i>Gender</i>				44(6)
Boy	0.59	0.88	0.54 (3)	
Girl	0.61	0.88 (1)	0.53 (5)	
Other	0.59	0.91 (62)	0.51 (3)	
<i>Age group</i>				-
< 13 years	0.50	0.84	0.45 (5)	
> 12 years	0.65	0.91	0.62 (5)	
<i>Living with</i>				-
Both parents	0.60	0.88 (1)	0.55 (5)	
One parent	0.58	0.88 (1)	0.54 (5)	
<i>Financial problems</i>				4 (2)
No	0.58	0.87 (24)	0.52 (5)	
Yes	0.64	0.91 (18)	0.61 (1)	
<i>Problems at home</i>				8 (3)
No	0.54	0.85 (29)	0.46 (5)	
Yes	0.55	0.88 (43)	0.48 (7)	
<i>Physical problems</i>				-
No	0.59	0.88 (20)	0.54 (5)	
Yes	0.76	0.95 (8)	0.70 (5)	
<i>Youth care</i>				17 (3)
No	0.59	0.88 (21)	0.54 (5)	
Yes	0.62	0.90 (28)	0.55 (5)	
<i>Parents divorced</i>				23 (2)
No	0.60	0.88 (17)	0.54 (5)	
Yes	0.58	0.88 (41)	0.53 (5)	
<i>Special needs education</i>				10 (6)
No	0.59	0.88 (22)	0.54 (5)	
Yes	0.69	0.93 (19)	0.62 (4)	

¹ H-coefficient scale for each sub-group; ² Reliability of the scale for each sub-group; between brackets, the highest crit value indicating violation of non-intersection; ³ Lowest H-coefficient of an item, its item number between brackets; ⁴ Highest crit value indicating violation of item invariant ordering for the scale (sample independence), its item number between brackets

conditions were lower than 40. The most difficult item was ‘stability in life circumstances and future perspectives’. The easiest item was ‘contact with peers’.

3.4 Sample Independence of Society Scale

A check of the crit values indicating violation of item invariant ordering revealed that, for the sub-groups based on youth care, the condition ‘adequate examples in society’ was too high (82). For other sub-groups, this condition also showed the highest crit values, indicating violation of invariant ordering. Moreover, in some scales of the sub-groups, the crit values indicating violation of non-intersection were higher than 40 (although lower than 80). This is problematic for interpreting the reliability (Rho). For this reason, we also checked the scale based on five conditions (excluding ‘adequate examples in society’ and ‘safe wider physical environment’). The H-coefficients of this final invariant scale are presented in the last column of Table 3. The

Table 3 Results of Mokken analysis for society scale after default search with check of crit values for non-intersection

<i>Condition</i>	<i>Popularity</i>	<i>H-coefficient Default scale</i>	<i>H-coefficient Invariant scale</i>
Stability in life circumstances and future perspectives (14)	3.46	0.47	0.48
Adequate examples in society (13)	3.51	0.45	-
Education (11)**	3.54	0.44	0.46
Respect (9)*	3.56	0.47	0.47
Social network (10)	3.57	0.41	0.46
Contact with peers (12)	3.62	0.43	0.45
Default: N=1639; H=0.45; Rho=0.81			
Invariant: N=1639; H=0.46; Rho=0.80			

* Condition with the highest crit value in default scale (42)

** Condition with the highest crit value in invariant scale (10)

strength and reliability of the invariant scale are practically similar to those of the default scale. The results for all sub-groups on the invariant scale with five items are presented in Table 4.

The five-item scale appears to be invariant: for every sub-group analysis, the highest crit values were lower than 80 and, with the exception of the sub-groups based on divorced parents, lower than 40 (see last column). The scale for the gender sub-group 'other' was very weak and not reliable. All other scales were moderately strong and reliable; however, they have a lower reliability than those in the family scale.

3.5 Convergent Validity

Positive significant correlations were found between the rating score on well-being, the mean on the family scale, and the mean on the society scale. The correlation between well-being and the family scale was 0.54, and the correlation between well-being and the society scale was 0.63. The latter was even higher than the correlation between the family and society scales (i.e. 0.60). The correlations were similar for separate sub-groups. Following Cohen (1992), the correlation between the family and society scales and well-being can be considered medium to high.

Table 5 presents the means and standard deviations for all sub-groups. The differences between all sub-groups were statistically significant, except for differences between 'boy', 'girl', and 'other' on the mean society score and the differences between children with and without physical problems on the mean family score. For family scores, all effect sizes were approximately 0.4; for society scores, all effect sizes were approximately 0.5.

Table 4 Results of sample independence of sub-groups for the society scale

<i>Sub-groups</i>	<i>H¹</i>	<i>Rho (highest crit)²</i>	<i>Lowest H (item_no)³</i>	<i>Highest crit item invariance (item_no)⁴</i>
<i>Gender</i>				17 (3)
Boy	0.51	0.88 (44)	0.48 (3)	
Girl	0.44	0.78	0.39 (6)	
Other	0.10	0.34 (211)	-0.21 (1)	
<i>Age group</i>				-
< 13 years	0.43	0.77 (30)	0.45 (3)	
> 12 years	0.43	0.77 (9)	0.62 (5)	
<i>Living with</i>				-
Both parents	0.47	0.81 (9)	0.45 (3)	
One parent	0.43	0.76	0.39 (6)	
<i>Financial problems</i>				17 (3)
No	0.44	0.79 (8)	0.43 (6)	
Yes	0.45	0.78 (24)	0.39 (4)	
<i>Problems at home</i>				13 (5)
No	0.44	0.79 (33)	0.46 (5)	
Yes	0.41	0.76 (38)	0.48 (7)	
<i>Physical problems</i>				29 (3)
No	0.47	0.80 (6)	0.45 (6)	
Yes	0.40	0.77 (48)	0.30 (4)	
<i>Youth care</i>				19 (2)
No	0.44	0.78 (11)	0.42 (3)	
Yes	0.41	0.77 (62)	0.36 (1)	
<i>Parents divorced</i>				50 (3)
No	0.47	0.80 (34)	0.46 (5)	
Yes	0.34	0.72 (35)	0.28 (6)	
<i>Special needs education</i>				27 (5)
No	0.46	0.79 (23)	0.44 (6)	
Yes	0.47	0.81 (56)	0.43 (5)	

¹: H-coefficient scale for each sub-group; ²: Reliability of the scale for each sub-group; between brackets, the highest crit value indicating violation of non-intersection; ³: Lowest H-coefficient of an item, its item number between brackets; ⁴: Highest crit value indicating violation of item invariant ordering for the scale (sample independence), its item number between brackets

4 Strengths and Limitations

The strengths of this study are the children's rights perspective, on the basis of which the BIC-S was developed; the participatory process with children in the development of the BIC-S; and the theoretical framework outlining what children need for healthy development. These provide indications for the content validity of the questionnaire. Based on a relatively large sample, we were able to distinguish two scales (family and society) on the BIC-S, corresponding to the theoretical framework of the BIC model.

At the same time, this study also has its limitations. We do not know how children answered the questions because they completed the questionnaire online. Since chil-

Table 5 Results for invariant family and society scales (without 'safe wider physical environment' and 'adequate examples in society') for separate sub-groups

Sub-groups	Family scale		Society scale	
	M	SD	M	SD
Gender ²				
Boy	3.79	0.38	3.55	0.56
Girl	3.73	0.42	3.52	0.52
Other	3.52	0.54	3.40	0.40
Age groups ¹				
< 13 years	3.84	0.31	3.66	0.44
> 12 years	3.61	0.51	3.29	0.61
Living with ¹				
Both parents	3.79	0.38	3.58	0.51
One parent	3.65	0.47	3.39	0.58
Financial problems				
No	3.78	0.37	3.57	0.50
Yes	3.42	0.62	3.02	0.72
Problems at home ¹				
No	3.81	0.33	3.58	0.50
Yes	3.12	0.65	2.98	0.67
Physical problems ³				
No	3.76	0.40	3.55	0.53
Yes	3.69	0.53	3.24	0.65
Youth care ¹	3.77			
No	3.51	0.39	3.57	0.49
Yes		0.58	2.81	0.76
Parents divorced ¹				
No	3.78	3.56	3.56	0.53
Yes	3.50	3.22	3.22	0.59
Special needs education ¹				
No	3.77	0.40	3.55	0.52
Yes	3.60	0.56	3.11	0.72

¹ Differences are significant for the family and society scales; ² Differences in gender are significant for the family scale, but not for the society scale in relation to 'boy' compared with 'girl' and 'other'; ³ Differences in physical problems are not significant on either of the scales.

dren were invited to complete the questionnaire on their own volition (no rewards were offered), we expect that children were dedicated and conscientious in filling out the questionnaire, and that they only filled it out once. The response rates for completion of the questionnaire (8–12 years 61%; 13–18 years 53%) proved to be satisfactory (Fincham, 2008). Online data collection might be a better option than other methods (Flanagan, Greenfield, Coad, & Nelson, 2015), due to the lower costs of data collection, the possibility of reaching a larger sample, the likelihood of a more representative sample, and the anonymous setting of data collection (Murthy, 2008). However, one possible disadvantage of online data collection is limited motivation to complete the questionnaire, possibly resulting in random answers and incomplete questionnaires (Wyrick & Bond, 2011).

To estimate the convergent validity of the BIC-S we used a one-item question to gain insight into the children's well-being. Children were asked to rate their life using a single number from 1 to 10, which is a very rough measure for gaining insight into the well-being of the child. The reason for this choice was that children themselves have recommended developing a short questionnaire (Authors, 2014, 2018), and the fact that school assignments are graded on a scale of 1 to 10. Despite this rough estimation, the results of this study point in the same direction as research into the predictive validity of the BIC-Q (professional version of the questionnaire), where an extended screening instrument was used to measure children's well-being (Authors, 2013). This one-item question can be classified as a Visual Analogue Scale (VAS), and there is evidence in the scientific literature that a VAS is appropriate for screening purposes (Crossley et al., 2004).

5 Implications

The BIC-S can be used as a tool for monitoring the rearing environment and well-being of children in all areas involving decisions and policies that affect children. In the Netherlands, the government does not monitor the rearing environment and well-being of children, and only high aggregate demographic data are gathered separately by different organizations (Netherlands' Ombudsman for Children, 2022). The development of a national Youth Monitor, in which the BIC-S is integrated with biographical and demographic data of children and families, education, and use of care, will provide relevant information for policymakers to bring policy and decision-making in line with a good developmental opportunities for children, thereby strengthening rights of children.

The use of a single uniform tool would enable comparison of children's experiences of their rearing environment and well-being at international level. To bring policy and decision-making that affects children in line with the main principles of the UN *Convention on the Rights of the Child*, children's opinions about their rearing environment and well-being are needed. Based on the outcomes of the BIC-S, interventions can be formulated for improving the rearing conditions and well-being of children generally, or even sub-groups of children who experience a lower quality of rearing environment, such as children growing up with financial and other problems, children involved in a problematic divorce, or children who attend a special needs' school. As they are more vulnerable, child-centred policy should focus on improving the rearing environment to protect their development.

A children's rights-based approach is quite uncommon in policy and decision-making affecting children, despite the UNCRC being ratified worldwide (except by the United States) and European regulations stating that the best interest of the child should be a primary consideration (Art. 24 European Charter of Fundamental Rights; Council of Europe, 2022). Evaluation research into the outcomes of 'children's rights-based policymaking' is necessary for the successful implementation of this approach. In line with Art. 12 of the UNCRC, a participative approach is recommended to ensure that policymaking is in line with the children's opinions about their needs. Children's participation in policy and decision-making should match the dynamic

approach of the process of participation defined by the Committee on the Rights of the Child (2009) for fulfilling children's right to be heard (Art. 12 of the UNCRC). The Committee defined participation as 'an ongoing process, which includes information sharing and dialogue between children and adults based on mutual respect, and in which children can learn how their views and those of adults are taken into account and shape the outcome of such processes' (see also Gal, 2017). This means that the collection of children's opinions is a good start, but only the first step.

We also recommend that further research be conducted into the psychometric properties of the cultural validity of the BIC-S. Policymakers and clinicians need to know whether the cultural background of children and families affects how children perceive their rearing environment and well-being. A distinction with regard to a cultural perspective on growing up is made between 'cultures of separateness' (individualistic) and 'cultures of relatedness' (collectivistic). Western European and Northern American countries are often characterized as individualistic cultures where autonomy and self-reliance are key values in child rearing. Non-western countries are more often characterized as collectivistic cultures where interdependence, social cohesion, and loyalty to the group are key values in child rearing (Kağıtçıbaşı, 2006). It is important to understand the influence of cultural background on the quality of the child-rearing environment from the perspective of children. International studies into the degree of happiness among children worldwide show wide disparities (World Health Organization, 2016), and comparative international research from a cultural perspective is recommended into the relationship between well-being and the quality of the rearing environment. International implementation of a culturally valid BIC-S would allow for comparison between the quality of the rearing environment and the well-being of children across the world, and in this way support the alignment of policies with the best interests of the child. One indication that the BIC-S appears to be culturally valid can be derived from previous research into the cultural validity of the BIC-Q, which showed that all rearing conditions are recognized as relevant (Authors, 2019). A culturally sensitive BIC-S will support the implementation of the EU strategy on the Rights of the child 'to protect, promote and fulfil children's rights in today's ever-changing world' (European Commission, 2022).

The main objective of this study was to investigate the psychometric properties of the Best Interest of the Child Self-Report (BIC-S), and specifically its construct and convergent validity. The BIC-S is grounded in a children's rights approach and measures the quality of the rearing environment according to the child's perspective. The outcomes of this tool can be used to bring decisions and policymaking in line with the best interests of the child. Based on a sample of children growing up in a family setting, this study showed that the construct and convergent validity of the BIC-S are satisfactory.

Consistent with the theoretical framework of the BIC model, the BIC-S can be divided into two scales: a family and a society scale. The family scale proved to be a strong invariant scale, and the seven family conditions of the BIC model were included in this scale ($H=0.60$; $Rho=0.88$). The society scale turned out to be a moderate invariant scale once we removed the 'safe wider physical environment' and 'adequate examples in society' conditions ($H=0.46$; $Rho=0.80$). However, the conditions removed from this scale proved to be relevant and should be considered

as separate items. The strong correlation of the family and society scales with well-being contributes to the convergent validity of the BIC-S (family scale: $r=0.54$; society scale: $r=0.63$).

The ecological model of Bronfenbrenner (1979) supports the strong family scale and moderate society scale observed. There is more consensus on the role of the family environment in the upbringing of children and the initial responsibility of parents for the quality of the family environment (Zougheibe, Xia, Jianhong, Dewan, Gudes, & Norman, 2021), compared to the role of society in the context of upbringing. The family-scale conditions belong to the microsystem of the ecological model and the society-scale conditions seem related to the micro, meso, and exo systems of the ecological model. For example, the meso system reflects the interactions between the family, the peer group, and education, while the exo system refers to the influence of people and safety in the neighbourhood on children's development. Because of this wider, less clearly delineated context, it is likely that the indicators for the quality of the rearing environment in the family is easier to determine than the indicators for society.

The results of this study of the psychometric properties of the BIC-S showed sample independence for sub-groups defined along the variables of gender, age, living situation, financial problems, problems at home, physical problems, use of youth care and special needs education, and parental divorce. Due to sample independence, it was possible to compare sub-groups on the same scales. The direction of the significant differences between the sub-groups related to the quality of the rearing environment was largely consistent with our expectations and contributed to the convergent validity of the BIC-S. Children growing up with financial problems experience a lower quality of rearing environment (Sun et al., 2015), and this also applies to children who experience problems at home (Bakker et al., 2012), make use of social welfare services (Amone-P'olak, 2010), have divorced parents (Van der Wal et al., 2019), or attend a special needs' school (Jackson et al., 2016). A comparison of sub-group differences revealed that the gender sub-group 'other' scored significantly lower on the family scale compared to 'boy' and 'girl'. One explanation could be that LGBTQIA+ children suffer from a higher degree of mental health problems, and despite efforts to ensure social and legal equality for these children in society, they are still marginalized.

The validation of the BIC-S took place in a developed Western country and we did not investigate sample independence with a sub-group of children growing up in a non-Western context. Most theories about child rearing and child development are constructed in Western countries, and questionnaires are developed based on these theories. This also applies to the BIC model and corresponding questionnaires. An indication that the BIC model is culturally sensitive is derived from research into the cultural validity of the BIC-Q (professional version) in Kosovo and Albania, where professionals recognized the 14 conditions as important for growing up in Kosovo and Albania (Authors, 2015). However, further research is needed to determine the cultural validity of the BIC-S.

6 Appendix I

I think the love and attention I get from my parents or educators is...

What we mean by this is:

- You feel like they get you
- They have time for you when you need them
- You have a good relationship with them

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the structure, rules and support we have at home are...

What we mean by this is:

- You get up at a fixed time
- You go to school every day
- There are agreements and rules that you have to stick to
- There is someone at home who helps you if you need it

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the example of my parents or educators set for me is...

What we mean by this is:

- Arguments are discussed and settled
- They explain things if there is something you don't understand
- They take good care of themselves and others
- They have a job or work as a volunteer

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the interest my parents or educators take in what I find important is...

What we mean by this is:

- You can tell them what you are going through
- They listen to your ideas and wishes
- You can talk to them if you have problems
- Some days you don't have to go to school, and on those days you can choose what you want to do

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think my upbringing is...

What we mean by this is:

- You are always well taken care of
- Someone is always there for you
- You are in contact with adults who are important to you or who have cared for you for a long time (for example, family members or foster parents)

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think going to school and my free time are...

What we mean by this is:

- You don't mind going to school
- You get enough help and support at school to learn properly
- You get to do the things that you enjoy or that you are good at in your free time (for example, sports, music, theater, scouts or skateboarding).

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think my contact with friends is...

What we mean by this is:

- You do fun things with your friends
- You get along well with your friends
- You feel like your friends understand you
- Your friends take into account who you are

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the help I get from other adults is...

What we mean by this is:

- Besides your parents or educators, there are other people who help you – like other family members, neighbours or teachers
- If you have any questions or need extra help, you can contact family members, neighbours, teachers or other people
- You are a member of a sports club or association

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the care I get is...

What we mean by this is:

- You get enough to eat and drink
- You have enough clothes
- You get enough sleep
- You can see a doctor when you need to

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the example that the people I know set for me is...

What we mean by this is:

- The children and adults you know take good care of themselves and others
- The children and adults you know are happy to help each other
- The children and adults you know treat each other with respect and are nice to each other
- The children and adults you know are a good influence on you

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the respect I get is...

What we mean by this is:

- You are not treated differently from other children you know, for example, because of your faith, what you look like, because you are
- poor or rich, or because you have a disability
- You feel like others are taking into account who you are
- You feel like you're getting the same chances as other kids
- You can be alone when you want to
- Your parents, educators or others don't read your WhatsApp conversations, emails or letters for no reason

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the level of safety in my house is...

What we mean by this is:

- You feel safe at home
- There's no violence in your home
- No drugs are used in your home
- There is no verbal abuse at home

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the level of safety in my neighbourhood is...

What we mean by this is:

- You feel safe in your neighbourhood
- There is not much fighting in the neighbourhood
- Break-ins don't happen very often in your neighbourhood
- There is no criminal behaviour in your neighbourhood
- There are no groups of young people or adults loitering in your neighbourhood, making you feel unsafe

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

I think the level of stability and security in my life is...

What we mean by this is:

- You feel confident about your future
- You have lived in one place for a long time, meaning that you have not moved often
- If something changes, it is discussed with you
- You haven't unexpectedly switched schools
- There have been no big events in your life that you've found difficult or annoying

- Good
- Satisfactory
- Moderate
-
- Unsatisfactory

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