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The Development and Preliminary Evaluation of a Schema Questionnaire for Children (SQC)

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Abstract. This study describes the development and initial evaluation of a cognitive schema questionnaire for children. The Schema Questionnaire for Children (SQC) was designed to capture the 15 early maladaptive schemas proposed by Young (1990). Face validity of the questionnaire items as assessed by a group of CBT experts ($n = 16$) was good. Concurrent validity was assessed by asking 47 school children aged 11–16 years of age to complete both the (SQC) and a British version of the 75 item Young's Schema Questionnaire short form (YSC-S). Significant correlations were obtained for 10 of the 15 schemas, with a further two approaching statistical significance. Although some of the correlations were modest, these initial results suggest that the SQC may be a valid quick and developmentally appropriate way of assessing Young's maladaptive schema in children.

Keywords: Schema, children, assessment.

Background

There is growing recognition of the importance of cognitive schema and their role in the development and maintenance of psychological problems in adult life (Beck, 1987; Young, 1990). A schema is a "structure for screening, coding and evaluating impinging stimuli" (Beck, 1964). They are mental templates derived from prior experience and knowledge and are used to evaluate events and inform future expectations. Beck (1987) hypothesized that early childhood experiences lead to the formation of negative schemas about one's self, the future and the external world. These schemas may then become latent but can be activated by specific circumstances that are analogous to the early experience. Similarly, Young (1990) proposed that adult psychopathology arises from the formation and maintenance of maladaptive schemas developed during childhood. Young identified 16 early maladaptive schemas with subsequent psychometric evaluation finding support for 15 in a community sample (Schmidt, Joiner, Young and Telch, 1995).

Although cognitive schemas are assumed to develop in childhood, this issue has received scant attention (Reinecke, Dattilio and Freeman, 2003). Little prospective research has been undertaken with children to establish when or how they become established, or indeed whether children present with the same schemas identified in adults. Establishing the presence of schemas in children would add support to current theoretical models. From a clinical

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perspective, the identification of critical stages for the development of childhood schemas may have implications for how maladaptive schemas can be prevented and how more adaptive schemas could be promoted. Cognitive processes develop during childhood and dysfunctional patterns may be less well established, so that interventions at this age may potentially reduce vulnerability in adulthood.

In order to understand the nature, type and development of clinically important cognitions in children, standardized methods of assessment are required. Scales have, for example, been developed to assess cognitive errors (Leitenberg, Yorst and Carroll-Wilson, 1986), negative attributions (Ronan, Kendall and Rowe, 1994) and automatic thoughts (Schniering and Rapee, 2002). However, comparatively little research has focused upon the assessment of cognitive schemas. In a recent community survey, Beckley (2002) administered the short form version of the Young Schema Questionnaire (YSQ-S; Young, 1998) to a non-clinical population of 705 adolescents aged 11–17. The study highlighted that the factor structure of the YSQ-S with adolescents was comparable to that obtained with adult clinical (Lee, Taylor and Dunn, 1999) and non-clinical (Schmidt et al., 1995) populations. This led the author to conclude that the YSQ-S is an adequate measure of EMSs in adolescents and that the study provided tentative support for the establishment of Young's proposed EMSs in childhood. However, Beckley (2002) noted that the short form YSQ did not discriminate between different types of psychological disorder and that individual schemas were only moderately associated with psychopathology.

The long and the short forms of the YSQ have comparable validity and reliability when used with an adult clinical sample, although whether a similar pattern would be found with adolescents has not been determined (Stopa, Thorne, Waters and Preston, 2001). Whilst adolescents may be able to complete the short form YSQ, it remains complex, lengthy (75 items) and it is questionable whether it is appropriate for younger children. This led Simons and Free (2000) to develop the Children's Schema Questionnaire (CSQ) for children aged 8–12 years of age. Based upon the YSQ, the authors generated 44 items, which were presented in thought bubbles to 166 children through cartoon vignettes. Factor analysis produced 14 factors, of which 10 related to those proposed by Young. However, correlations between the proposed EMSs assessed by the CSQ and YSQ were low, with only 5 showing a significant correlation.

The development of a more appropriate method of routinely assessing childhood schemas would provide clinicians with a useful tool in everyday clinical work and a way of assessing clinical change. It would also provide a standardized way for furthering knowledge about the nature and development of adaptive and maladaptive cognitive schemas in children and, for example, clarify at what age they become stable and enduring. This study was undertaken in order to develop a short schema questionnaire for use with children and to provide preliminary comparative data with the YSQ-S.

Methodology

Item development

Descriptions of Young's 15 Early Maladaptive Schemas for which there was psychometric support (Schmidt et al., 1995) were examined. One of the authors (PS) created a single question to summarize the essence of each EMS, which were then presented to five clinical child psychologists attending a monthly specialist CBT peer supervision group. The psychologists

Table 1. Face Validity – percentage agreement of raters ($n = 16$) between each item of the SQC and Young's Early Maladaptive Schemas (EMS)

Schema Questionnaire for Children	Young EMS	% Agreement ($n = 16$)
It is important to be better than others at everything I do	Unrelenting Standards/ Hypercriticalness (US)	100
No one understand me	Social Isolation/Alienation (SI)	62.5
Others are out to get or hurt me	Mistrust/Abuse (MA)	93.8
People I love will never be there for me	Abandonment/Instability (AB)	50.0
I need other people to help me get by	Dependence/Incompetence (DI)	93.8
Bad things happen to me	Vulnerability to harm/or illness (VH)	87.5
No one loves or cares about me	Emotional Deprivation (ED)	56.3
It is more important to put other peoples wishes and ideas before my own	Subjugation (SB)	93.8
Other people are better than me	Defectiveness/Shame (DS)	62.5
I am more important/special than others	Entitlement/Grandiosity (ET)	100
People will be cross or upset if I say the things I really want to say	Self-Sacrifice (SS)	50.0
I must not show my feelings to others	Emotional Inhibition (EI)	75.0
It is important that my parents/carers are involved in everything I do	Enmeshment/undeveloped self (EM)	75.0
I am not responsible for what I do or say	Insufficient self-control/ Self-discipline (IS)	81.3
I am a failure	Failure (FA)	93.8

were given the questions, a summary of Young's schemas and were asked to rate, in private, which schemas they best represented.

There was total agreement for 7/15 items, 80% agreement for 2/15 and 60% agreement for 3/15 items. These 12 items went forward to the questionnaire unchanged. The remaining 3 items relating to the schemas of Subjugation, Self-Sacrifice and Failure resulted in only 40% agreement. These were then discussed within the CBT supervision group and an alternative question developed to capture the schema.

Face validity

Clinicians attending a presentation by one of the authors (PS) at a joint Child Psychology Special Interest Group and BABCP conference were invited to take part in the second stage of the study. They were given the 15 items and a summary of Jeff Young's 15 schemas and asked to select which schema each item best assessed. A total of 16 sets of data were returned. Rates of agreement between question items and the EMS they were assumed to assess are presented in Table 1.

Twelve of the items resulted in rater agreement in excess of 60%, with half of these achieving rates of over 90%. In every case, the raters most frequently endorsed the item as assessing the intended schema. Thus, although only 50% endorsed the schemas assessing Abandonment and Self-Sacrifice, the remaining assessors did not consistently endorse an alternative schema.

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These 15 items formed the Schema Questionnaire for Children (SQC) and were then subject to the next stage of the study.

Convergent validity

Convergent validity was assessed by comparing the Schema Questionnaire for Children (SQC) with the Young Schema Questionnaire short form (YSQ-S). The questions from the SQC were initially presented as a series of statements accompanied by a cartoon vignette. The cartoon attempted to visually describe the statement but after piloting with five children these were dropped. Some children reported that they had not attended to the cartoon (i.e. they were not required), or if they had, felt that some did not adequately reflect or indeed detracted from the statement. An alternative was piloted, whereby each statement was visually presented in a thought bubble (Stallard, 2002, p. 97). This presentation proved popular with the children and was used as the final format of the scale. Children were asked to use a thought thermometer to rate on a 1–10 scale how strongly they agreed with each statement (Stallard, 2002, p. 87).

The YSQ-S consists of 75 items and assesses each of the 15 schemas covered by the SQC. The YSQ-S was slightly modified (Beckley, 2002; Simmons and Stewart, 2002) so that it was suitable for use with adolescents. For each item the child was asked to rate on a 1–6 scale how much each statement described them. The items were then summed to form scores for each schema.

Ethical approval

Ethical approval was granted to recruit children aged 11–16 years from a local co-educational secondary school to the study. An opt-in recruitment process was agreed, whereby parents actively opted their children into the study. In order to compensate children for participating, each child received a £2.00 W. H.Smith voucher.

Administration

During a personal health and social education lesson, those children whose parents had agreed for them to take part in the study were gathered together in the school hall. Children were informed again about the study, given a study information sheet, and their signed consent obtained. The questions were then read out by one of the authors (HR), and any problems in understanding were addressed. The children then completed, in private, the rating scale for each question.

Results

Study group

Forty-seven children completed both questionnaires. One child failed to complete 10/15 items from the SQC and their data were therefore excluded from the analysis. Of the 46 children, 13 were boys and 33 girls, with an average age of 12.91 years ($SD = 1.56$ yrs). Half of the children were 11 or 12 years of age.

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Descriptive statistics and internal consistency of the Schema Questionnaire for Children

The average, standard deviations and range of ratings for each item are presented in Table 2. The internal consistency of the YSQ-S and SQC with this population of children was assessed using Cronbach's alpha. The results indicate that both questionnaires had acceptable internal consistency (YSQ-S = 0.94; SQC = 0.82).

Correlation between the YSQ-S and the Schema Questionnaire for Children

Bi-variate Pearson correlation co-efficients were calculated between the YSQ-S and the SQC for each of the 15 schemas and are summarized in Table 2. Statistically significant correlations were obtained for 10 of the 15 items, with a further 2 (self-sacrifice and subjugation) approaching significance. There was also a significant correlation ($r = .775$, $p = .0001$) between the summed scores on the YSQ-S and those on the SQC.

Age comparisons

An analysis was undertaken to determine whether the average scores of younger children (11–12 years) on the SQC were significantly different to those of older children (aged 13–16 years). An exploratory analysis suggested that the data did not conform to the assumptions of a normal distribution. A non-parametric, Mann-Whitney analysis was undertaken. Table 2 demonstrates that there was little difference between the age groups, with a statistically significant difference occurring on only one item. Younger children were more likely to believe that bad things happen to them. The item assessing insufficient self-control ("I am not responsible for what I do or say") approached statistical significance ($p = .057$) and there was a trend for younger children to score more highly on two other items: "I am a failure" and "I need other people to help me get by".

Conclusion

The results of this preliminary analysis appear encouraging and demonstrate that the Schema Questionnaire for Children has good face validity. Although correlations with the YSQ-S were sometimes modest, statistically significant correlations were obtained for 10 items, with a further 2 approaching significance. The remaining 3 items were not statistically significant (i.e. "People I love will never be there for me"; "It is important that my parents/carers are involved in everything I do"; "I am not responsible for what I do or say"), thereby raising two possibilities.

First, the single item developed for the children's questionnaire may not adequately reflect the multiple dimensions encapsulated within the schemas proposed by Young. Although face validity for most items was good, attempting to distill the multiple elements of each schema into a single statement was difficult, and inevitably some of the complexity and characteristics of the schema will have been lost. The item intending to assess abandonment, for example, achieved one of the lowest agreement ratings between the experts, thereby raising the possibility that the item did not adequately assess the intended schema.

Agreement ratings for the other two items and schemas were, however, good. An alternative explanation might lie in the developmental appropriateness of these schemas for children

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Table 2. Schema Questionnaire for children ($n = 46$): average scores, standard deviations, range, age breakdown and correlation with the Young Schema Questionnaire – short form

	Total cohort ($n = 46$)			Age comparison		
Schema Questionnaire for Children item (corresponding Young Early Maladaptive Schema)	Average (*SD*)	Number of rating categories used (range)	Correlation with Young Schema Questionnaire (significance)	Age 11–12 ($n = 23$) Average (*SD*)	Age 13–16 ($n = 23$) Average (*SD*)	Significance
It is important to be better than others at everything I do (US)	3.48 (2.49)	9 (1–10)	$r = .615$, ($p = .0001$)	3.61 (2.98)	3.35 (1.94)	$Z = .448$, $p = .654$
No one understand me (SI)	4.20 (2.86)	10 (1–10)	$r = .548$, ($p = .0001$)	4.70 (3.10)	3.70 (2.58)	$Z = .956$, $p = .339$
Others are out to get or hurt me (MA)	2.37 (1.97)	8 (1–10)	$r = .594$, ($p = .0001$)	2.65 (2.46)	2.09 (1.31)	$Z = .024$, $p = .981$
People I love will never be there for me (AB)	2.11 (1.99)	7 (1–9)	$r = .202$, ($p = .179$)	2.48 (2.19)	1.74 (1.74)	$Z = 1.36$, $p = .173$
I need other people to help me get by (DI)	4.41 (2.74)	10 (1–9)	$r = .393$, ($p = .007$)	5.26 (3.21)	3.57 (1.88)	$Z = 1.71$, $p = .088$
Bad things happen to me (VH)	4.83 (2.85)	10 (1–10)	$r = .418$, ($p = .004$)	5.74 (2.93)	3.91 (2.52)	$Z = 2.09$, $p = .037$
No one loves or cares about me (ED)	2.17 (2.29)	7 (1–10)	$r = .439$, ($p = .002$)	2.43 (2.61)	1.91 (1.95)	$Z = .660$, $p = .509$
It is more important to put other peoples wishes and ideas before my own (SB)	4.63 (2.14)	10 (1–10)	$r = .274$, ($p = .066$)	4.91 (2.50)	4.35 (1.72)	$Z = .514$, $p = .607$
Other people are better than me (DS)	4.59 (2.53)	9 (1–10)	$r = .407$, ($p = .005$)	4.70 (2.40)	4.48 (2.69)	$Z = .400$, $p = .689$
I am more important/special than others (ET)	2.33 (2.23)	8 (1–10)	$r = .352$, ($p = .016$)	2.61 (2.57)	2.04 (1.85)	$Z = .234$, $p = .815$
People will be cross or upset if I say the things I really want to say (SS)	3.96 (2.28)	9 (1–10)	$r = .279$, ($p = .060$)	4.22 (2.52)	3.70 (2.03)	$Z = .578$, $p = .563$
I must not show my feelings to others (EI)	3.15 (2.63)	9 (1–10)	$r = .718$, ($p = .0001$)	3.26 (2.83)	3.04 (2.48)	$Z = .193$, $p = .847$
It is important that my parents/carers are involved in everything I do (EM)	3.96 (2.37)	8 (1–10)	$r = .015$, ($p = .922$)	4.26 (2.47)	3.65 (2.27)	$Z = 1.01$, $p = .311$
I am not responsible for what I do or say (IS)	2.57 (2.70)	9 (1–10)	$r = .031$, ($p = .839$)	3.00 (2.68)	2.13 (2.70)	$Z = 1.90$, $p = .057$
I am a failure (FA)	2.39 (2.30)	9 (1–10)	$r = .671$, ($p = .0001$)	2.91 (2.70)	1.87 (1.74)	$Z = 1.74$, $p = .082$

and whether they have been established in children of this age. Adolescence is a time when children acquire more responsibility and independence, so that the "pervasive difficulty or refusal to exercise sufficient self-control", which is assumed to characterize the insufficient self-control/self-discipline schema, might not yet have developed. Similarly, the "excessive emotional involvement and closeness of one or more significant others (often parents)", assumed to underlie the enmeshment/undeveloped self-schema, may not be developmentally dysfunctional in this age group. Indeed, the reverse may prove to be significant i.e. that in a group of children with psychological problems there may be less emotional involvement and closeness. Children operate within a family context where much of their life is effected by parental demands and controls. These schemas could possibly become more relevant and activated during the later stages of adolescence, when the young person becomes more developmentally independent.

Finally, comparatively little is known about the development of specific schemas in children and thus the appropriateness of questionnaire items on the SQC at each age. A limited attempt was made to explore age differences, with a statistically significant difference being found on only one item assessing vulnerability to harm. The item assessing insufficient self-control approached significance, and there was a trend for younger children to score more highly on two other items. These data would suggest that there were few differences, although it is unclear whether they would become more apparent with a larger sample or if comparisons were made with children under the age of 11. Younger children may, for example, hold simpler representations of each schema as reflected by these questionnaire items. The developing cognitive maturity found during adolescence may result in more complex multi-faceted representations that may not be adequately captured by the single statement of the SQC.

In considering these findings, the limitations of this study need to be acknowledged. First, the sample size was small and as such it was not possible to undertake a more comprehensive analysis of differences within age groups. Further work with a large study group is required to replicate and substantiate these findings and to explore possible age or gender differences. This work may start to illuminate whether or not there are any critical differences between the cognitions of boys and girls, and to clarify the age where these schemas may become activated and more enduring. Second, this study has been undertaken with a non-clinical group and it would be useful to compare these findings with a clinical group referred to a child and adolescent mental health service. The identification of different patterns within these groups would be an exciting possibility that could provide the basis of more focused cognitive work with children with mental health problems. Third, the SQC was administered at only one point of time and as such it is not possible to make any assertions regarding the stability of these thought patterns in children. Recent or specific events could have triggered the children to identify with these thoughts on the day of assessment, but this may not necessarily reflect established ways of thinking. A test re-test analysis would be required to determine whether these patterns are consistent over time and thus support the notion of pervasiveness embedded in schema theory.

This preliminary study provides support for the Schema Questionnaire for Children as a valid, quick and developmentally appropriate way of assessing the EMSs in children as proposed by Young. The questionnaire requires further psychometric evaluation but, if substantiated, provides a useful way of exploring the development of schemas in children. Further work exploring the onset and development of cognitive schemas in younger children

would help to identify the age at which these ways of thinking becoming dominant, pervasive and dysfunctional. In turn, this could inform the timing and nature of clinical interventions with those at risk of developing maladaptive schemas at a stage when they may be more responsive to change.

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