

A BIDIMENSIONAL INSTRUMENT TO ASSESS THE SENSE OF GUILT IN CHILDHOOD: THE GUILT FEELINGS SCALE FOR CHILDREN (GFS_C)

FRANCA TANI
ROSAPIA LAURO GROTTA
LUCIA PONTI
UNIVERSITY OF FIRENZE

In the psychoanalytical theoretical perspective the sense of guilt has been formulated in terms of the two related constructs: persecutory guilt and reparative guilt. The focus of this paper is to develop a bidimensional scale of the sense of guilt for children and verify its conceptual structure via exploratory and confirmatory approaches. Starting from two scales for adults proposed by Caprara, Perugini, Pastorelli, and Barbaranelli (1990), the authors develop the Guilt Feelings Scale for Children (GFS_C) which in the final version includes nine items for Persecutory Guilt Feelings (P-GFS_C), nine items for Reparative Guilt Feelings (R-GFS_C), and six control items. The sample was composed of 242 Italian children (132 males and 110 females), aged 8-11. Overall, results confirmed the hypothesized structure of the scale providing a good level of fit of the model to the data. Finally, the results showed a good internal consistency of the global scale and of both the subscales.

Key words: Sense of guilt; Persecutory guilt; Reparative guilt; Children; Self-report measure.

Correspondence concerning this article should be addressed to Franca Tani, Department of Health Sciences, Psychiatry and Psychology Unit, University of Firenze, Via di San Salvi 12, 50135 Firenze, Italy. Email: franca.tani@psico.unifi.it

The construct of sense of guilt plays a central role in moral development across life span, starting from early childhood (Siegler, DeLoache, & Eisenberg, 2010). In particular, in the psychoanalytic perspective the analysis of guilt feelings has been a constant focus, due to the crucial role they maintain in the course of the psychic development and in the genesis of psychopathology (Lebovici, 1971). In the Freudian description, drives are able to elicit an aggressive component that is connected to the Oedipal dynamics (Freud, 1922, 1926, 1933, 1938). After Freud, Klein (1948) proposed an original reformulation of Freudian ideas on Super-Ego, anxiety, and guilt. Starting from clinical evidence of the ways in which primitive unconscious phantasies emerged in children's analyses, Klein proposed to distinguish two different dynamics involving guilt feelings that she named *paranoid-schizoid position* and *depressive position*. In the most primitive developmental phases the immature Ego has to cope with large amounts of innate aggressiveness that are mastered through projective defensive mechanisms. A vicious circle is then established between aggression and feelings of persecution that is the characteristic of the paranoid-schizoid position.

With the progression of development, a certain degree of synthesis with respect to the hated and loved aspects of the primitive object relationship is achieved. This upgrade determines, in turn, a fundamental change in the perceived quality of anxiety: feelings of persecution, although mitigated, are still present, but there are also concerns about the damage to the loved object and an intense wish for reparation: access is gained to the depressive position. In other words, if in the paranoid-schizoid position anxiety is related to fear of annihilation of the Self, in the depressive position the “anxiety is predominantly related to the harm done to internal and external loved objects by the subject’s destructive impulses. Depressive anxiety has manifold contents, such as: the good object is injured, it is suffering, it is in a state of deterioration; it changes into a bad object, it is annihilated, lost, and will never be there any more” (Klein, 1948, p. 118). The wish to repair is made even more intense by the awareness that the source of damage is in one’s own destructiveness. The imperious push to repair is therefore a direct consequence of the guilt that comes from the awareness that we have been the cause of the damage. In the research on guilt feelings, the theoretical investigation of the constructs of schizo-paranoid and depressive anxiety has often been neglected and has not as yet been subjected to empirical scrutiny. We believe instead that the absence of this type of investigation represents a missed opportunity to consider together the events of the inner world and the child’s social skills that form the basis for the development of social competence in childhood.

Klein’s (1927) study is one of the first contributions to explore the connections between antisocial behavior and altruism. Actually, we can assume that the prevalence of persecutory guilt, which is linked to the fear of punishment, can trigger aggressive behaviors as an expression of the tension caused by persecutory anxiety. On the other hand, depressive guilt triggers the need to repair the damage caused by one’s own destructiveness, and leads to prosocial and altruistic interpersonal behaviors.

In the context of developmental psychology, an extensive line of investigations has amply documented how specific behavioral patterns that children put in place in spontaneous interactions with peers, are closely associated with their degree of acceptance and popularity within the peer group: aggressive children tend to be rejected by their companions while children who adopt altruistic and prosocial behaviors enjoy greater popularity. These different patterns within the group may have very relevant developmental consequences. The marginalization that tends to exclude more and more the aggressive children can result in stigma for the child which, in turn, can seriously hinder the full development of social skills. The importance of these aspects is therefore not only theoretical but also social, thus enhancing the role of research programs on the issue. Despite the theoretical relevance of these constructs, their operationalization has been widely neglected in the developmental psychological literature, overall with particular regard to childhood.

THE EMPIRICAL ASSESSMENT OF THE SENSE OF GUILT

Actually, most instruments until now developed to assess guilt feelings have been devoted to the adult population (e.g., Caprara, Perugini, Pastorelli, & Barbaranelli, 1990; Harder & Zalma, 1990; Kluger & Jones, 1992; O’Connor, Berry, Weiss, Bush, & Sampson, 1997; Tangney, 1990; Tangney, Wagner, & Gramzow, 1992). More recently, Tilghman-Osborne, Cole, and

Felton (2010) tried to provide a classification of the studies aiming to reach a psychological definition of the guilt construct, and offered a systematic review of the existing measures. In this review, the authors describe guilt feelings with respect to 18 different nuclear experiences, that can encompass inter alia, moral and/or social transgression, focusing on the self or on the judgment expressed by others, remorse/apology and reparative wishes, responsibility, and both adaptive and maladaptive features. In their opinion, a relevant source of variability in guilt experience has been attributed to the developmental factor. In fact, guilt feelings have been investigated, through different perspectives and using different assessment devices, also in toddlers (Kochanska, Gross, Lin, & Nichols, 2002), in children (Tilghman-Osborne, 2011; Tilghman-Osborne, Cole, & Felton, 2012; Williams & Bybee, 1994), and in adolescents (Donatelli, Bybee, & Buka, 2000; Tangney & Dearing, 2002, Tilghman-Osborne, 2011; Tilghman-Osborne et al., 2012).

In the approach proposed by Kochanska et al. (2002), the guilt experience of children is described in terms of behaviors that focus on the violation of moral norms, producing a relevant effect on the subjective experience of the Self, which in turn relates to the wish to implement reparative actions. This approach tends therefore to stress the adaptive aspects of the guilt experience more than the maladaptive ones. The model proposed by Williams and Bybee (1994) has enriched the theory by including the dimension of social transgression, referring to the idea that one's action or omission might cause others to be hurt, and the dimension of remorse/apology, referring to the compulsion to apologize or confess.

In Tangney and colleagues' (1996a, 1996b) approach, the constructs of guilt is operationalized simultaneously with shame. Starting from the Test of Self-Conscious Affect (TOSCA) devised for adults (Tangney, 1990), the authors constructed a scale for children (TOSCA-C), that is a self-report measure including 15 scenarios (10 negative and five positive) designed for use with children aged 8-12 years. Each scenario is paired with an illustration and with four or five questions exploring guilt, shame, externalization, detachment, and pride experiences (Tangney, Wagner, Gramzow, & Fletcher, 1990). Tangney produced further empirical evidence about the developmental trends showing that guilt, once its shared variance with shame has been ruled out from the data analysis, is consistently positively related to other-oriented empathy (Tangney, 1995).

A second shorter scenario-based guilt measure is the Shame and Guilt Scale (SGS; Alexander, Brewin, Vearnals, Wolff, & Leff, 1999): it is a list of 10 scenarios assessing guilt feelings (five items) and shame experiences (five items). According to Leitenberg, Yost, and Carroll-Wilson (1986), some kinds of unrealistic or excessive self-blame can be considered to be normative in childhood, and therefore the measure of inappropriate and excessive guilt needs to be sensitive to this developmental factor. This issue has been empirically addressed in the study by Tilghman-Osborne (2011) who created a new measure, called the Inappropriate and Excessive Guilt Scale (IEGS), based on both clinical and research evidence. The test was designed for use with children aged from 7 to 18.

In this conceptual and empirical context, a single study approached the issue of measuring guilt feelings within the Kleinian perspective; starting from an empirical evaluation of the Kleinian constructs, Caprara and colleagues (1990) proposed and validated two dimensional self-report scales that assess the reparative and persecutory aspects of guilt. The Need to Repair Scale is composed by 15 content items and five control items, while the Fear of Punishment Scale consists of 23 content items and seven control items. Despite the relevant interest of this attempt, both scales were built and validated for an adult population.

THE PRESENT STUDY

More specifically, the purpose of this study was to develop a scale, the Guilt Feelings Scale for Children (GFS_C), to measure the main psychoanalytical dimensions of sense of guilt, the reparative and persecutory ones, and to verify the factor structure hypothesized by the authors (Study 1). Subsequently, we intended to provide support for the validity of the GFS_C factorial structure and to evaluate the scale's reliability (Study 2). We expected that the GFS_C would reproduce the bidimensional factor structure found in the adults' sample by Caprara and colleagues (1990), at both an exploratory and confirmatory level of analysis.

STUDY 1

The purpose of the first study was: 1) to develop the Guilt Feelings Scale for Children, and 2) to test the factor structure of the scale.

METHOD

In order to develop a scale to measure the guilt feelings in children, we revised the two scales for adults by Caprara and colleagues (1990): the Need to Repair Scale and the Fear of Punishment Scale. To this aim, in order to ensure that the items were appropriate to the linguistic and cognitive levels of children, we first eliminated three items from the Need to Repair Scale and nine items from the Fear of Punishment Scale, because they were characterized by very high syntactical and conceptual complexity. For example, we excluded items such as "In general, the harm caused to others turns against those who are responsible" from the Need to Repair Scale, and items as "I had the feeling of being in a blind alley" or "I had reactions that is hard to forgive" from the Fear of Punishment Scale.

Moreover, some items were changed and reworded. For example, in the Need to Repair Scale we transformed the original item "When I get angry with someone I do not rest until I arrive at a reconciliation" to "When I get angry with someone, I'm upset until we make it up," and the original item "Can't have peaceful sleep who is guilty of serious misconduct" to "People who do bad things can't sleep very well." In the same way, in the Fear of Punishment Scale we transformed the original item "Sometimes I look back with fear to the consequences of what I have said or done" to "Sometimes I am afraid of the consequences of what I have said or done" and the original item "The thought of being punished for my mistakes is for me a source of anguish" to "The thought of being punished for my mistakes worries me a lot." Finally, we proportionally reduced the number of the control items, maintaining three control items for each scale.

So, the Guilt Feelings Scale for Children (GFS_C) we developed consists of 26 items which assess two fundamental dimensions of sense of guilt: the Reparative Guilt Feelings (R-GFS_C) that consist of 12 items and the Persecutory Guilt Feelings (P-GFS_C) that consists of 14 items, plus six control items. For both scales, response choices for each item were rated on a 5-point scale, from 1 (*absolutely true*) to 5 (*absolutely false*). Subscale scores were obtained by calculating the mean of values assigned by respondents to each item. The content items of the ini-

tial scale on which analyses were performed is fully reported in Appendix A, followed by the control items. Before data collection, the adequacy of the final version of the P-GFS_C was tested in a pilot administration to a sample of thirty children, attending two classes of 4th grade in one of the schools recruited for this study.

Participants

The first sample consisted of 242 Italian children (132 males and 110 females) aged 8 to 11 ($M = 9.42$, $SD = 0.49$). Participants are representative of students from twenty primary school classes, which were randomly selected from all the public primary schools in the metropolitan area of Florence.

Procedure

The study was conducted in accordance with the guidelines for the ethical treatment of human participants of the Italian Psychological Association. Children participated voluntarily in the project. Formal consent from parents and educational authorities was obtained before data collection. Children were asked to anonymously complete the Guilt Feelings Scale for Children (GFS_C) in their classroom during school hours.

Plan of Data Analysis

All analyses were conducted on the 26 content items, excluding the six control items. Exploratory factor analysis (EFA) was used to provide preliminary data on the factor structure of the GFS_C in order to test the two underlying dimensions of guilt as assessed by this scale: Reparative Guilt Feelings (R-GFS_C) and Persecutory Guilt Feelings (P-GFS_C). To evaluate the factor structure of the scale emerged by the EFA, a confirmatory factor analysis (CFA) was performed.

RESULTS

Preliminary Analyses

Before conducting the exploratory factor analysis, the response distributions of all individual items were examined. Analyses revealed a non-normal distribution for two items (“When I get angry with someone I’m upset until we make it up” and “Faced with my mistakes I wish to make amends as soon as possible”). These items were normalized using standard logarithmic transformation which brought the value of asymmetry to within the range of +1 and -1 (Maroulides & Hershberger, 1997; Muthén and Kaplan, 1985). Table 1 illustrates the descriptive statistic for the 26 items of the GFS_C.

TABLE 1
Means, standard deviations, skewness, and kurtosis of initial GFS_C

Item	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
1	2.72	1.26	.47	.47
2	3.21	1.34	-.04	-.88
3	1.54	1.12	.90	.90
4	2.61	1.30	.52	-.78
5	1.88	1.04	.93	.74
6	2.44	1.30	.79	-.42
7	2.36	1.26	.73	-.49
8	1.68	0.92	.98	1.00
9	1.98	1.00	.95	.53
10	2.27	1.25	.70	-.51
11	1.77	0.96	.81	.75
12	2.65	1.27	.43	-.71
13	0.16	0.22	.97	.16
14	2.25	1.12	.87	.25
15	3.71	1.31	-.68	-.73
16	2.02	1.27	.98	-.22
17	2.29	1.13	.74	.01
18	2.71	1.21	.51	-.63
19	3.01	1.32	.09	.81
20	1.83	1.07	.81	.68
21	2.86	1.26	.29	-.88
22	2.14	1.09	.67	.58
23	1.92	1.03	.99	.84
24	2.48	1.19	.62	-.38
25	2.53	1.28	.60	-.69
26	0.10	0.17	.75	.96

Note. For items' content, see Appendix A.

Sampling adequacy and factorability of the data were assessed using the Kaiser-Meyer-Olkin measure (KMO; Kaiser, 1970; Kaiser & Rice, 1974) and Bartlett's (1954) test of sphericity. The KMO corresponds to the ratio of the squared correlation between variables to the squared partial correlation between variables. The KMO statistics vary from 0 to 1. A value of 0 indicates that the sum of partial correlations is large in relation to the sum of correlations, indicating diffusion in the pattern of correlation; therefore, factor analysis is likely to be inappropriate. A value close to 1 indicates the patterns of correlations are relatively compact and factor analysis should yield distinct and reliable factors (Field, 2009). KMO for these data was .70, which is acceptable, indicating that the sample size for this analysis is suitable.

Bartlett's test of sphericity examines the null hypothesis that variables in the population correlation matrix are uncorrelated. The approximate chi-square obtained was 770.79 ($df = 210$) and was statistically significant ($p < .001$), indicating that correlations between items were sufficiently large for the analysis. Therefore, these results suggest that we should continue with factor analysis of these data.

Exploratory Factor Analysis

Principal axis factoring method, with an oblique rotation, was used to examine the factor structure underlying the GFS_C. A two-factor solution was selected based on theoretical considerations that motivated the authors in the construction of the measure, and on the basis of an empirical criterion resulting from the inspection of the scree plot. With regard to item selection for the two factors, factor loadings of .30 and higher were considered meaningful. Items with loadings below .30 on two factors were excluded from further analyses. Moreover, items that appeared to have double loadings on two factors (i.e., loadings higher than .30 and of comparable size) were excluded. On the basis of these criteria, two items from the R-GFS_C subscale and three from the P-GFS_C subscale were deleted following the first factor analysis. Particularly, “In general, everyone gets what they deserve” and “Faced with my mistakes I wish to make amends as soon as possible” had a loading below .30 on the respective factor, and “I have felt the need to be forgiven,” “It is better to lie than be punished,” and “Sometimes I do not feel up to the situation” had a loading greater than .30 on both factors. After excluding these items, factor analysis was recomputed on the remaining 21 items. The final factor loadings are reported in Table 2.

TABLE 2
Factor loadings for the GFS_C after oblique rotation

Item	P-GFS_C factor	R-GFS_C factor
1	.34	
2	.46	
4	.61	
7	.68	
10	.34	
12	.36	
19	.42	
21	.43	
22	.55	
24	.47	
25	.39	
3		.40
5		.54
6		.39
8		.52
13		.33
14		.55
16		.49
17		.36
20		.41
23		.56

Note. P-GFS_C = Persecutory Guilt Feelings subscale; R-GFS_C = Reparative Guilt Feelings subscale. For items' content, see Appendix A.

Upon extraction, the two factors accounted for 43.75% of the total variance of the measured variables, with the first factor, the P-GFS_C subscale, explaining 25.36% of the variance

and the second factor, the R-GFS_C subscale, explaining 18.39% of the variance. The correlation between factors was .65.

Confirmatory Factor Analysis

The factorial structure of the scale was tested via confirmatory factor analysis (Jöreskog & Sörbom, 1993). The analysis was performed using the AMOS 5.0 statistical program (Arbuckle, 2005). The adequacy of the model was evaluated by using χ^2 test. However, since this index is strongly influenced by the sample size and is therefore an ambiguous index of fit (Bollen, 1989; Corbetta, 1993; Primi, 2002), we also considered other indices. More specifically, goodness of fit was evaluated using the comparative fit index (CFI; Bentler, 1990; Hu & Bentler, 1999; Kenny & McCoach, 2003), the Tucker-Lewis index (TLI; Tucker & Lewis, 1973), the standardized root mean square residual (SRMR; Bentler, 1995), and the root mean square error of approximation (RMSEA; Steiger, 1990). These indices were selected as they provide different information for evaluating the fit of the model (i.e., absolute fit or fit relative to a null model). Used together, these indices provide a more reliable evaluation of the model's fit (Hu & Bentler, 1998). The first model to be tested is a two-factor model derived from the exploratory factor analysis previously reported, consisting in 21 items (see Figure 1).

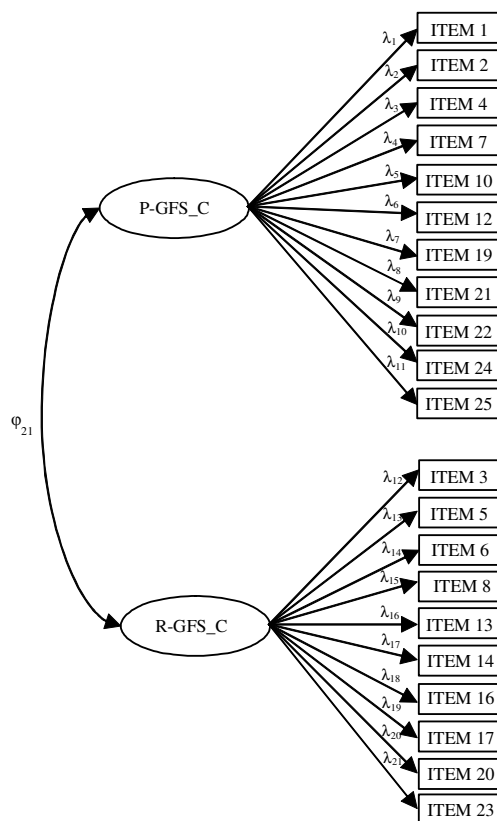


FIGURE 1

Factorial structure of the GFS_C. Items are reported in Appendix A.

P-GFS_C = Persecutory Guilt Feelings subscale; R-GFS_C = Reparative Guilt Feelings subscale.

Goodness-of-fit indices showed an unsatisfactory fit: $\chi^2 = 228.63$, $p < .05$, $\chi^2/df = 1.22$; CFI = .78; TLI = .76; SRMS = .08; RMSEA = .08. Furthermore, in the tested model no significant loadings emerged for three items: “Sometimes I feel that my conscience is not completely clear,” “It is always better to confess one’s actions even if they are extremely bad,” and “It seems to me that the others are not very tolerant with me.” We therefore removed these items and repeated the analysis. Confirmatory factor analysis conducted on the modified model (with 18 observed variables) showed satisfactory fit indices, confirming the adequacy of the tested modified structure: $\chi^2 = 145.91$, ns , $\chi^2/df = 1.09$; CFI = .92; TLI = .91; SRMS = .07; RMSEA = .07. Furthermore, loadings were significant for all 18 items of the GFS_C. Finally, the correlation between the two dimensions indicated a significant and positive relationship (see Figure 2).

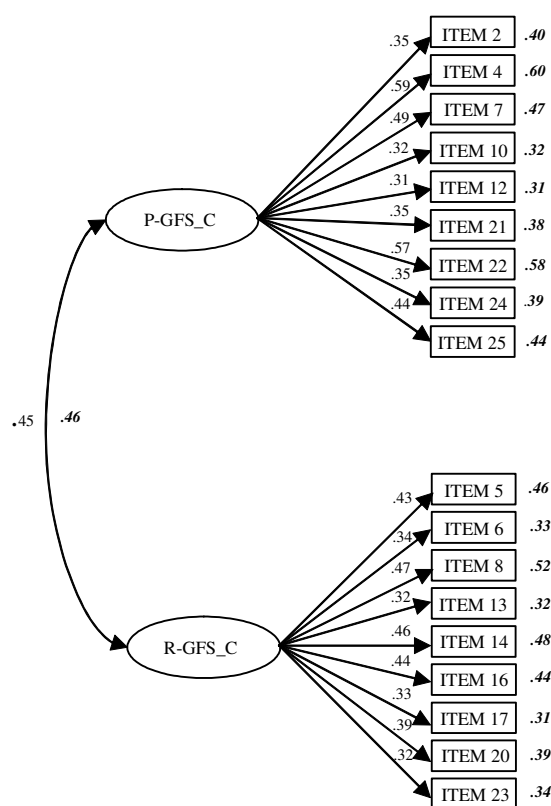


FIGURE 2

Results of confirmatory factor analyses conducted on the bifactor model of the GFS_C. The values written on the left, in normal text, refers to the first confirmatory factor analysis (Study 1); the values written on the right, in bold and italics, refer to the second confirmatory factor analysis (Study 2). P-GFS_C = Persecutory Guilt Feelings subscale; R-GFS_C = Reparative Guilt Feelings subscale.

DISCUSSION

The purpose of Study 1 was to construct a measure to assess the guilt feelings in children starting from two scales for adults by Caprara and colleagues (1990), the Need to Repair Scale, which consists of 15 content items and five control items, and the Fear of Punishment Scale, which is composed of 23 content items and seven control items.

To this goal, we eliminated 12 items from the original scales because they were too complex; furthermore, some items were reformulated in order to make them appropriate to the cognitive and language skills of children. The GFS_C scale consists of 26 items which measure two dimensions of sense of guilt: 12 items for the Reparative Guilt Feelings (R-GFS_C) and 14 items for the Persecutory Guilt Feelings (P-GFS_C). Moreover, control items were proportionally reduced to six, three for each scale.

Exploratory factor analysis supported the hypothesis of a two-factor solution, but also involved the elimination of five items since their loadings were not high or were unclear (i.e., they were loaded on two factors). So, the final version of GFS_C scale consists of 21 items: 10 items for the R-GFS_C subscale and 11 items for the P-GFS_C, plus six control items. A confirmatory factor analysis performed to further test the factorial structure of the scale led to the removal of three more items, confirming the adequacy of a model including 18 observed variables and two latent constructs.

STUDY 2

The main aim of the second study was to confirm the validity of the factorial structure of the GFS_C scale, emerged in Study 1, using an independent sample. In addition, we aimed to compare the two-factor solution with a more parsimonious model, and to assess the reliability of the scale.

METHOD

Participants

The second sample included 230 Italian children (120 males and 110 females) aged 8 to 11 ($M = 9.52$, $SD = 0.68$). Children were recruited from randomly selected primary schools in the metropolitan area of Florence.

Procedure

In addition to the authorization of the educational authority, only children whose parental consent was obtained completed the questionnaire. The scale was completed anonymously and administered collectively during class sessions.

Confirmatory Factor Analyses

The factorial structure of the scale was tested via confirmatory factor analysis (Jöreskog & Sörbom, 1993). The analysis was performed using the AMOS 5.0 statistical program (Arbuckle, 2005). There were 18 observed variables and two latent variables in the model which was

tested (Figure 2). Moreover, we tested the unidimensional model as an alternative model. In order to compare the fit of the bidimensional and unidimensional models the Akaike information criterion (AIC; Akaike, 1987) was considered. The AIC is a modification of the standard χ^2 that includes a penalty for complexity; given two models, the one with the lower AIC is preferred. Results showed the following fit indices: $\chi^2 = 265.98$, $p < .001$, $\chi^2/df = 1.98$; CFI = .93; TLI = .92; SRMS = .07; RMSEA = .06; AIC = 339.98; CAIC (consistent AIC) = 504.19, confirming the adequacy of the hypothesized model (see Figure 2).

In order to rule out the possibility that another more parsimonious model would fit the data better than the final two-factor model, an alternative one-factor model was tested. It is evident from the analyses that the one-factor model does not provide a better fit to data, with $\chi^2 = 330.73$, $p < .001$, $\chi^2/df = 2.45$; CFI = .76; TLI = .66; SRMS = .08; RMSEA = .08; AIC = 402.73; CAIC = 562.51. So, the two-factor model seems to provide a better representation of data. Moreover, the range of the squared multiple correlations of this latter model vary from a minimum of .13 to a maximum of .38.

Reliability

Cronbach's alpha was calculated to determine the internal consistency of the GFS_C. Results indicate that the GFS_C had high internal consistency ($\alpha = .75$). The alpha values were .69 for the P-GFS_C subscale and .68 for the R-GFS_C subscale. Moreover, Spearman-Brown value for the P-GFS_C subscale was .71 and for the R-GFS_C subscale was .70.

DISCUSSION

In this study, psychometric properties of the GFS_C were evaluated more in depth in a new sample. In particular, our aims were to confirm on an independent sample the validity of factorial structure of the GFS_C emerged in Study 1, to compare the two-factor solution with a more parsimonious model, and to evaluate the reliability of the scale.

Overall, our results have replicated the two-factor structure hypothesized, also showing that the GFS_C presents satisfactory psychometric properties and an adequate reliability. The CFI index was below .95; however, the two-factor model, compared with an alternative one-factor model, seems to provide a better fit to data.

CONCLUSIONS

The aim of this research was to develop an instrument, the Guilt Feelings Scale for Children (GFS_C), which would be capable of measuring the feelings of guilt in children starting from the revision of the two scales for adults by Caprara and colleagues (1990). More specifically, our purpose was to produce a measure able to assess the main dimensions of guilt highlighted by the psychoanalytical literature, that is, the reparative and persecutory aspects of guilt. This scale, composed of 18 items of content and six control items, is shown in Appendix B.

On the whole, the GFS_C scale showed satisfactory psychometric properties and adequate reliability. Thus, our results confirmed the two-factor structure hypothesized. Moreover, the internal consistency of GFS_C and its subscales (P-GFS_C and R-GFS_C) was good. However, our analyses involved the elimination of some items, whose loadings were ambiguous or low. The poor contribution of these items probably depends on their content, which does not clearly discriminate between the reparative and persecutory aspects of guilt.

Nonetheless, in spite of the elimination of these items, the remaining items measure the level of feelings of guilt. In fact, our results have shown that the GFS_C is an appropriate instrument to evaluate the perception that children have of their feelings of guilt. Although the self-report nature of this instrument does not guarantee the truthfulness of the evaluations provided, these data constitute an important information source in the field of feelings of guilt, in which many aspects remain inaccessible to observation or hetero-evaluation. Moreover, to date there were no measures available to assess this construct during childhood. Thus, the development of a reliable instrument allowing us to measure the dimensions of guilt in infancy is extremely important considering that feelings of guilt play a central role in moral development across life span, starting from early childhood.

There are some limitations in the present studies. First, some fit indices were not completely adequate, notwithstanding the hypothesized model can be considered on the whole acceptable. Moreover, we only tested the factorial validity and reliability of the scale. It would be useful to conduct further studies aimed to examine other types of validity, such as convergent and discriminant validity. Despite their limitations, the results of the present study provide a useful starting point for the development of an instrument which can measure the feelings of guilt during childhood.

FUNDING

This research was partially supported by IPA CERP Grants_2013, n. 863.

REFERENCES

- Akaike, H. (1987). Factor analysis and AIC. *Psychometrika*, 52, 317-332. doi:10.1007/BF02294359
- Alexander, B., Brewin, C. R., Vearnals, S., Wolff, G., & Leff, J. (1999). An investigation of shame and guilt in a depressed sample. *British Journal of Medical Psychology*, 72, 323-338. doi:10.1348/000711299160031
- Arbuckle, J. L. (2005). *Amos 6.0 user's guide*. Spring House, PA: Amos Development Corporation.
- Bartlett, M. S. (1954). A note on the multiplying factors for various chi square approximations. *Journal of Royal Statistical Society, 16*(Series B), 296-298. doi:10.1037/0033-2909.107.2.238
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, 107, 238-246. doi:10.1037/0033-2909.107.2.238
- Bentler, P. M. (1995). EQS structural equations program manual. Encino, CA: Multivariate Software.
- Bollen, K. (1989). *Structural equations with latent variables*. New York, NY: Wiley.
- Caprara, G. V., Perugini, M., Pastorelli, C., & Barbaranelli, C. (1990). Esplorazione delle dimensioni comuni della colpa e dell'aggressività [An exploration of the common dimensions of guilt and aggressivity]. *Giornale Italiano di Psicologia*, 17, 665-681.
- Corbetta, P. (1993). *Metodi di analisi multivariata per le scienze sociali* [Methods of multivariate analysis for social science]. Bologna, Italy: Il Mulino.
- Donatelli, J. L., Bybee, J., & Buka, S. L. (2000). What do mothers make adolescents feel guilty about? Incidents, reactions, and relation to depression. *Journal of Child and Family Studies*, 16, 859-875.
- Field, A. (2009). *Discovering statistics using SPSS* (3rd ed.). Sussex, UK: Sage.
- Freud, S. (1922). The Ego and the Id [*SE*, 18, 3-68]. London, UK: Hogarth.
- Freud, S. (1926). Inhibitions, symptoms and anxiety [*SE*, 20, 77-174]. London, UK: Hogarth.
- Freud, S. (1933). Why war? [*SE*, 22, 195-216]. London, UK: Hogarth.

- Freud, S. (1938). An outline of psycho-analysis [*SE*, 33, 139-208]. London, UK: Hogarth.
- Harder, D. W., & Zalma, A. (1990). Two promising shame and guilt scales: A construct validity comparison. *Journal of Personality Assessment*, 55, 729-745. doi:10.1080/00223891.1990.9674108
- Hu, L., & Bentler, P. M. (1998). Fit indices in covariance structure modelling: Sensitivity to underparameterized model misspecification. *Psychological Methods*, 4, 424-453. doi:10.1037/1082-989X.3.4.424
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling*, 6, 1-55. doi:10.1080/10705519909540118
- Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: User's reference guide*. Chicago, IL: Scientific Software.
- Kaiser, H. F. (1970). A second generation of little jiffy. *Psychometrika*, 35, 401-415. doi:10.1007/BF02291817
- Kaiser, H. F., & Rice, J. (1974). Little Jiffy, Mark IV. *Educational and Psychological Measurement*, 34, 111-117. doi:10.1177/001316447403400115
- Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit in structural equation modeling. *Structural Equation Modeling*, 10, 333-351. doi:10.1207/S15328007SEM1003_1
- Klein, M. (1927). Criminal tendencies in normal children. *British Journal of Medical Psychology*, 7, 177-192. doi:10.1111/j.2044-8341.1927.tb00652.x
- Klein, M. (1948). A contribution to the theory of anxiety and guilt. *International Journal of Psychoanalysis*, 29, 114-123.
- Kluger, K. E., & Jones, W. H. (1992). On conceptualizing and assessing guilt. *Journal of Personality and Social Psychology*, 62, 318-327. doi:10.1037/0022-3514.62.2.318
- Kochanska, G., Gross, J. N., Lin, M.-H., & Nichols, K. E. (2002). Guilt in young children: Developmental, determinants, and relations with a broader system of standards. *Child Development*, 73, 461-482.
- Lebovici, S. (1971). *Les sentiments de culpabilité chez l'enfant et chez l'adulte* [Guilt feelings in childhood and in adults]. Paris, France: Hachette.
- Leitenberg, H., Yost, L. W., & Carroll-Wilson, M. (1986). Negative cognitive errors in children: Questionnaire development, normative data, and comparisons between children with and without self-reported symptoms of depression, low self-esteem, and evaluation anxiety. *Journal of Consulting and Clinical Psychology*, 54, 528-536. doi:10.1037//0022-006X.54.4.528
- Marcoulides, G. A., & Hershberger, S. L. (1997). *Multivariate statistical methods: A first course*. Mahwah, NJ: Laurence Erlbaum Associates.
- Muthén, B., & Kaplan, D. (1985). A comparison of some methodologies for the factor analysis of non-normal Likert variables. *British Journal of Mathematical and Statistical Psychology*, 38, 171-189. doi:10.1111/j.2044-8317.1985.tb00832.x
- O'Connor, L. E., Berry, J. W., Weiss, J., Bush, M., & Sampson, H. (1997). Interpersonal guilt: The development of a new measure. *Journal of Clinical Psychology*, 53, 73-89.
- Primi, C. (2002). *Indici di bontà di adattamento nei modelli di equazioni strutturali* [Indices of goodness fit in structural equation models]. Firenze, Italy: Loggia de' Lanzi.
- Siegler R., DeLoache, J., & Eisenberg, N. (2010). *How children develop*. New York, NY: Worth Publishers.
- Steiger, J. H. (1990). Structural model evaluation and modification: An interval estimation approach. *Multivariate Behavioural Research*, 25, 173-180.
- Tangney, J. P. (1990). Assessing individual differences in proneness to shame and guilt: Development of the self-conscious affect and attribution inventory. *Journal of Personality and Social Psychology*, 59, 102-111. doi:10.1037/0022-3514.59.1.102
- Tangney, J. P. (1995). Recent advances in the empirical study of shame and guilt. *American Behavioral Scientist*, 38, 1132-1145.
- Tangney, J. P., & Dearing, R. L. (2002). Shame and guilt across the lifespan: The development of moral emotions. In J. P. Tangney & R. L. Dearing (Eds.), *Shame and guilt* (pp. 139-156). New York, NY: Guilford Press.
- Tangney, J. P., Wagner, P., & Gramzow, R. (1992). Proneness to shame, proneness to guilt, and psychopathology. *Journal of Abnormal Psychology*, 101, 469-478. doi:10.1037/0021-843X.101.3.469
- Tangney, J. P., Wagner, P. E., Gramzow, R., & Fletcher, C. (1990). *The Test of Self-Conscious Affect for Children (TOSCA-C)*. Unpublished manuscript, George Mason University, Fairfax, VA.
- Tilghman-Osborne, C. (2011). *Inappropriate and excessive guilt: Measure validation and developmental findings in the relation to depression across development* (Unpublished doctoral dissertation). Graduate School of Vanderbilt University, Vanderbilt, TN.
- Tilghman-Osborne, C., Cole, D. A., & Felton, J. W. (2010). Definition and measurement of guilt: Implications for clinical research practice. *Clinical Psychology Review*, 30, 536-546. doi:10.1016/j.cpr.2010.03.007
- Tilghman-Osborne, C., Cole, D. A., & Felton, W. (2012). Inappropriate and excessive guilt: Instrument validation in relation to depression. *Journal of Abnormal Child Psychology*, 40, 607-620. doi:10.1007/s10802-011-9591-6
- Tucker, L. R., & Lewis, C. (1973). A reliability coefficient for maximum likelihood factor analysis. *Psychometrika*, 38, 1-10.
- Williams, C., & Bybee, J. (1994). What do children feel guilty about? Development and gender differences. *Developmental Psychology*, 30, 617-623. doi:10.1037/0012-1649.30.5.617

APPENDIX A

Items of the Initial Italian Version of the GFS_C on Which the Analyses Were Performed and Control Items

1 <i>Del tutto vero</i> [Absolutely true]	2 <i>Abbastanza vero</i> [Quite true]	3 <i>Né vero né falso</i> [Neither true nor false]	4 <i>Abbastanza falso</i> [Quite false]	5 <i>Del tutto falso</i> [Absolutely false]				
1. Mi capita di sentirmi con la coscienza non completamente a posto [Sometimes I feel that my conscience is not completely clear] (P)	1	2	3	4	5			
2. Temo di suscitare l'invidia degli altri [I am afraid of making people envy me] (P)	1	2	3	4	5			
3. È sempre meglio confessare le proprie azioni anche se sono estremamente brutte [It is always better to confess one's actions even if they are extremely bad] (R)	1	2	3	4	5			
4. Alcuni miei pensieri e desideri mi turbano molto [Some of my thoughts and desires trouble me a lot] (P)	1	2	3	4	5			
5. Il ripensare a promesse fatte e non mantenute mi crea una grande agitazione [I'm very anxious when I think that I haven't kept my promises] (R)	1	2	3	4	5			
6. È difficile che possa avere sonni tranquilli chi non ha fatto il proprio dovere [People who do bad things can't sleep very well] (R)	1	2	3	4	5			
7. Mi capita di sentirmi giudicato dagli altri [I feel judged by others] (P)	1	2	3	4	5			
8. Sento il bisogno di riparare ai torti che posso aver procurato ad altri [I feel the need to make amends for the wrongs I did to others] (R)	1	2	3	4	5			
9. Ho avvertito il bisogno di essere perdonato [I have felt the need to be forgiven] (P)	1	2	3	4	5			
10. Il pensiero di essere punito per i miei errori è per me fonte di grossa preoccupazione [The thought of being punished for my mistakes worries me a lot] (P)	1	2	3	4	5			
11. In genere ognuno ha quel che si merita [In general, everyone gets what they deserve] (R)	1	2	3	4	5			
12. Mi sento insoddisfatto per ciò che ho fatto [I feel dissatisfied with what I did] (P)	1	2	3	4	5			
13. Quando mi arrabbio con qualcuno non sto bene finché non faccio pace [When I get angry with someone I'm upset until we make it up] (R)	1	2	3	4	5			
14. Il provare rancore nei confronti di qualcuno è per me motivo di grande turbamento [I really don't like holding a grudge against someone] (R)	1	2	3	4	5			
15. È preferibile mentire pur di non essere punito [It is better to lie than to be punished] (P)	1	2	3	4	5			
16. Non si può sfuggire alle conseguenze dei propri errori [You can not escape the consequences of your own mistakes] (R)	1	2	3	4	5			
17. Il non riuscire a fare il mio dovere è fonte di grande imbarazzo [I'm very embarrassed when I don't do what I am supposed to] (R)	1	2	3	4	5			
18. Mi capita di non sentirmi all'altezza della situazione [Sometimes I do not feel up to the situation] (P)	1	2	3	4	5			
19. Mi sembra che gli altri siano poco tolleranti con me [It seems to me that the others are not very tolerant with me] (P)	1	2	3	4	5			
20. Il pensare alle ingiustizie del mondo mi rattrista profondamente [Thinking about the injustices of the world saddens me a lot] (R)	1	2	3	4	5			
21. Non ho fatto per gli altri tutto ciò che avrei potuto [I haven't done everything that I could have done for others] (P)	1	2	3	4	5			
22. Mi capita di ripensare con timore alle conseguenze di ciò che ho fatto o detto [Sometimes I am afraid of the consequences of what I have said or done] (P)	1	2	3	4	5			

(Appendix A continues)

Appendix A (continued)

1 <i>Del tutto vero</i> [<i>Absolutely true</i>]	2 <i>Abbastanza vero</i> [<i>Quite true</i>]	3 <i>Né vero né falso</i> [<i>Neither true nor false</i>]	4 <i>Abbastanza falso</i> [<i>Quite false</i>]	5 <i>Del tutto falso</i> [<i>Absolutely false</i>]				
23. Prima o poi la giustizia finisce col prevalere [Sooner or later justice finally prevails] (R)				1	2	3	4	5
24. Temo che la gente possa venire a conoscenza di qualcosa che ho fatto [I am afraid that people will find out about something that I did] (P)				1	2	3	4	5
25. Ho la sensazione di non essere stato sincero [I have the feeling of not having been honest] (P)				1	2	3	4	5
26. Di fronte ai miei errori desidero riparare il prima possibile [Faced with my mistakes I wish to make amends as soon as possible] (R)				1	2	3	4	5
Lo sport mi appassiona [I like sports a lot] (C) (P)				1	2	3	4	5
Mi piacciono i videogiochi [I like video games] (C) (R)				1	2	3	4	5
Guardo spesso la televisione [I often watch television] (C) (P)				1	2	3	4	5
Ricordo i sogni che faccio [I remember my dreams] (C) (R)				1	2	3	4	5
Mi piacciono i cartoni animati [I like cartoons] (C) (P)				1	2	3	4	5
Leggo prima di addormentarmi [I read before falling asleep] (C) (R)				1	2	3	4	5

Note. (P) = items of the P-GFS_C (Persecutory Guilt Feelings subscale); (R) = items of the R-GFS_C (Reparative Guilt Feelings subscale); (C) = control items.

APPENDIX B

Final Italian Version of the GFS_C

1 <i>Del tutto vero</i> [<i>Absolutely true</i>]	2 <i>Abbastanza vero</i> [<i>Quite true</i>]	3 <i>Né vero né falso</i> [<i>Neither true nor false</i>]	4 <i>Abbastanza falso</i> [<i>Quite false</i>]	5 <i>Del tutto falso</i> [<i>Absolutely false</i>]				
1. Temo di suscitare l'invidia degli altri [I am afraid to make people envy me] (P)	1	2	3	4	5			
2. Alcuni miei pensieri e desideri mi turbano molto [Some of my thoughts and desires trouble me a lot] (P)	1	2	3	4	5			
3. Il ripensare a promesse fatte e non mantenute mi crea una grande agitazione [I'm very anxious when I think that I haven't kept my promises] (R)	1	2	3	4	5			
4. È difficile che possa avere sonni tranquilli chi non ha fatto il proprio dovere [People who do bad things can't sleep very well] (R)	1	2	3	4	5			
5. Mi capita di sentirmi giudicato dagli altri [I feel judged by others] (P)	1	2	3	4	5			
6. Sento il bisogno di riparare ai torti che posso aver procurato ad altri [I feel the need to make amends for the wrongs I did to others] (R)	1	2	3	4	5			
7. Lo sport mi appassiona [I like sports a lot] (C) (P)	1	2	3	4	5			
8. Il pensiero di essere punito per i miei errori è per me fonte di grossa preoccupazione [The thought of being punished for my mistakes worries me a lot] (P)	1	2	3	4	5			
9. Mi piacciono i videogiochi [I like video games] (C) (R)	1	2	3	4	5			
10. Mi sento insoddisfatto per ciò che ho fatto [I feel dissatisfied with what I did] (P)	1	2	3	4	5			
11. Quando mi arrabbio con qualcuno non sto bene finché non faccio pace [When I get angry with someone I'm upset until we make it up] (R)	1	2	3	4	5			
12. Il provare rancore nei confronti di qualcuno è per me motivo di grande turbamento [I really don't like holding a grudge against someone] (R)	1	2	3	4	5			
13. Guardo spesso la televisione [I often watch television] (C) (P)	1	2	3	4	5			
14. Non si può sfuggire alle conseguenze dei propri errori [You can not escape the consequences of your own mistakes] (R)	1	2	3	4	5			
15. Il non riuscire a fare il mio dovere è fonte di grande imbarazzo [I'm very embarrassed when I don't do what I am supposed to] (R)	1	2	3	4	5			
16. Ricordo i sogni che faccio [I remember my dreams] (C) (R)	1	2	3	4	5			
17. Mi piacciono i cartoni animati [I like cartoons] (C) (P)	1	2	3	4	5			
18. Il pensare alle ingiustizie del mondo mi rattrista profondamente [Thinking about the injustices of the world saddens me a lot] (R)	1	2	3	4	5			
19. Non ho fatto per gli altri tutto ciò che avrei potuto [I haven't done everything that I could have done for others] (P)	1	2	3	4	5			
20. Mi capita di ripensare con timore alle conseguenze di ciò che ho fatto o detto [Sometimes I am afraid of the consequences of what I have said or done] (P)	1	2	3	4	5			
21. Leggo prima di addormentarmi [I read before falling asleep] (C) (R)	1	2	3	4	5			
22. Prima o poi la giustizia finisce col prevalere [Sooner or later justice finally prevails] (R)	1	2	3	4	5			
23. Temo che la gente possa venire a conoscenza di qualcosa che ho fatto [I am afraid that people will find out about something that I did] (P)	1	2	3	4	5			
24. Ho la sensazione di non essere stato sincero [I have the feeling of not having been honest] (P)	1	2	3	4	5			

Note. (P) = items of the P-GFS_C (Persecutory Guilt Feelings subscale); (R) = items of the R-GFS_C (Reparative Guilt Feelings subscale); (C) = control items.