



Provided by the author(s) and University College Dublin Library in accordance with publisher policies., Please cite the published version when available.

Title	Validation of a 28-item version of the Systemic Clinical Outcome and Routine Evaluation in an Irish context: The SCORE-28
Authors(s)	Cahill, Paul; O'Reilly, Ken; Carr, Alan; Dooley, Barbara A.; Stratton, Peter
Publication date	2010-08
Publication information	Journal of Family Therapy, 32 (3): 210-231
Publisher	Wiley
Item record/more information	http://hdl.handle.net/10197/4270
Publisher's statement	This is the pre-peer reviewed version of the following article: CCahill, P., O'Reilly, K., Carr, A., Dooley, B. and Stratton, P. (2010), Validation of a 28-item version of the Systemic Clinical Outcome and Routine Evaluation in an Irish context: the SCORE-28. Journal of Family Therapy, 32: 210-231, doi: 10.1111/j.1467-6427.2010.00506.x published in final form at http://onlinelibrary.wiley.com/doi/10.1111/j.1467-6427.2010.00506.x/abstract
Publisher's version (DOI)	10.1111/j.1467-6427.2010.00506.x

Downloaded 2019-03-24T11:33:13Z

The UCD community has made this article openly available. Please share how this access benefits you. Your story matters! (@ucd_oa)



Some rights reserved. For more information, please see the item record link above.



**Validation of a 28-item version of the
Systemic Clinical Outcome and Routine Evaluation in an Irish context:
The SCORE-28**

Paul Cahill¹, Ken O'Reilly¹, Alan Carr^{1,2}, Barbara Dooley¹ & Peter Stratton³

1. School of Psychology, University College Dublin

2. The Clanwilliam Institute, Dublin

3. Leeds Family Therapy and Research Centre, University of Leeds

Submitted to JFT on 24 August 2009, revised and resubmitted in March 2010

<http://mc.manuscriptcentral.com/jft>

USER ID alan.carr@ucd.ie PASSWORD 5q4jqymq MANUSCRIPT ID - JFT-2009-0063

Correspondence address: Alan Carr, Professor of Clinical Psychology, School of Psychology, Newman Building, University College Dublin, Belfield, Dublin 4, Ireland. E. alan.carr@ucd.ie. P. +353-1-716-8740

Word count: 5000 words including references, excluding 3 tables and an appendix

Running head: SCORE-28

Citation: Cahill, P., O'Reilly, K., Carr, A., Dooley, B., & Stratton, P. (Submitted). Validation of a 28-item version of the Systemic Clinical Outcome and Routine Evaluation in an Irish context: The SCORE-28. *Journal of Family Therapy*.

Email list: Peter Stratton <p.m.stratton@ntlworld.com>, Paul Cahill <cahillpaul@gmail.com>, Ken O'Reilly <kenoreilly2000@yahoo.ie>, Barbara Dooley <barbara.dooley@ucd.ie>, Alan Carr <alan.carr@ucd.ie>, declan fay <declanfay123@hotmail.com>

ABSTRACT

This paper describes the development, in an Irish context, of a 3-factor, 28-item version the Systemic Clinical Outcome and Routine Evaluation (SCORE) questionnaire for assessing progress in family therapy. The 40-item version of the SCORE was administered to over 700 Irish participants including non-clinical adolescents and young adults, families attending family therapy, and parents of young people with physical and intellectual disabilities and cystic fibrosis. For validation purposes, data were also collected using brief measures of family and personal adjustment. A 28-item version of the SCORE (the SCORE-28) containing three factor scales that assess family strengths, difficulties and communication was identified through exploratory principal components analysis. Confirmatory factor analysis showed that the factor structure of the SCORE-28 was stable. The SCORE-28 and its 3 factor scales were shown to have excellent internal consistency reliability, satisfactory test-retest reliability, and construct validity. The SCORE-28 scales correlated highly with the General Functioning Scale of the Family Assessment Device, and moderately with the Global Assessment of Relational Functioning Scale, the Kansas Marital and Parenting Satisfaction Scales, the Satisfaction with Life Scale, the Mental Health Inventory – 5, and the total problems scale of the Strengths and Difficulties Questionnaire. Correlational analyses also showed the SCORE-28 scales were not strongly associated with demographic characteristics or social desirability response set. The SCORE-28 may routinely be administered to literate family members over 12 years before and after family therapy to evaluate therapy outcome.

INTRODUCTION

The SCORE (Systemic Clinical Outcome and Routine Evaluation) is a pragmatic and clinically-based questionnaire for completion by family members 12 years and older, to capture indicators of family functioning that may be sensitive to therapeutic change (Stratton et al., 2006). It was developed to meet the increasing demands for family therapy to demonstrate its effectiveness (Carr, 2009a, 2009b, 2009c; Stratton, 2005). Available self-report family assessment instruments are predominantly North American and most were developed decades ago (Carr, 2000, Janes, 2005). Therefore it was decided to develop a new European instrument. The aim was to produce a brief, reliable, valid, and user-friendly instrument which systemic therapists throughout the UK could routinely use to assess families before and after therapy. These data could be periodically aggregated and analysed to provide practice-based evidence for the effectiveness of family therapy in routine clinical settings. This approach to generating practice-based evidence was pioneered in the UK by a team that developed the CORE (Clinical Outcomes and Routine Evaluation, Mellor-Clark, & Barkham, 2006). The CORE was designed for use in individual therapy in response to the NHS commitment to routinely evaluating psychotherapy outcome (Department of Health, 1996, 1997, 2001, 2004). The SCORE builds on the success of the CORE and is modelled on that instrument. Also its name derives from the CORE. However, the SCORE items, which inquire about aspects of family life, differ from items in the CORE, which concern individual psychopathology.

The SCORE was developed through collaboration with colleagues from practitioner research networks that included the Maudsley Hospital, the Institute of Psychiatry, Great Ormond Street Hospital, the Tavistock, Leeds NHS trust, Chalk Farm Hospital, St Georges Hospital, Barnet Enfield and Haringey Trust and Nottingham Trust intellectual disability service. The SCORE development group consisted of Julia Bland, (Chair, Consultant Psychiatrist in Systemic Psychotherapy, Maudsley Hospital), Peter Stratton, Emma Janes (Consultant Psychiatrist, SLAM) and Judith Lask (Institute of Psychiatry). This team developed a preliminary 40-item version of the SCORE (the SCORE-40), which has been undergoing validation in the UK. The SCORE-40 is based on a thorough review of reliable and valid psychometric instruments for assessing families in clinical settings (Janes, 2005). Items from established instruments were selected or new ones generated for the SCORE-40 if they assessed quality of family life, functionality

of family relationships, change from beginning to end of therapy, and the need for more family therapy (Janes, 2005). The refinement of the SCORE-40 item pool was informed by expert clinician and service-user feedback, which was obtained through PRNs within the UK Association of Family Therapy (Stratton et al., 2006). The SCORE-40 contains items relevant to five dimensions of family functioning, namely (1) atmosphere and mood, (2) conflict (hostility / danger), (3) expressiveness and communication, (4) rules and roles (individuation), and (5) functionality and adaptability (flexibility) (Bland et al., 2007). The first three dimensions reflect aspects of family emotional climate and the last two are concerned with family problem-solving. The constructs of emotional climate and family problem-solving are common to many self-report family assessment measures.

The SCORE-40 contains 40 descriptive statements to which responses are given on six-point Likert scales. These range from 1 = that describes my family extremely well, to 6 = that describes my family - not at all. There are also five open-ended questions about family life; the nature, severity and impact of family problems; therapeutic needs; and opinions about completing the SCORE. Responses are given as written statements or are marked on visual analogue scales.

In Ireland, as in the UK, recent government health policy recognizes the central role of evidence-based psychotherapy in the provision of comprehensive mental health services (Expert Group On Mental Health Policy, 2006). In response to this important policy development, the Irish Council for Psychotherapy (ICP) commissioned a report which presented the evidence-base for the range of psychotherapy models represented by the ICP, including family therapy (Carr, 2007). However, it is no longer sufficient to practice an evidence-based form of psychotherapy. Current Irish health policy also requires ongoing service evaluation. In this context, it is vital that family therapists in Ireland routinely evaluate their work. It was this that provided the impetus for the current project.

The aim of the research described in this paper was to develop a short version of the SCORE and validate it for use in an Irish context. Specifically we wished to (1) determine the factor structure of the SCORE-40 and identify the most useful subset of items that loaded on the SCORE's constituent factors; (2) establish the reliability of the SCORE's factor scales; (3) determine the relationship between the SCORE factor scales and other indices of family and individual adjustment, and (4) determine the

relationship between the SCORE factor scales and both demographic variables and social desirability response set. There were specific hypotheses associated with each of these research objectives. First, we expected that a small number of factors involving a subset of items from the SCORE-40 would be identified through principal component analysis. Second, we expected that these factor scales would show internal consistency and test-retest reliability. Third, we expected that SCORE factor scales would show construct validity by correlating moderately to strongly with other indices of family and individual adjustment. Fourth, we expected that SCORE factor scales would not correlate with demographic characteristics or social desirability response set. There are no theoretical grounds to assume associations between demographic factors and the constructs assessed by the SCORE. Also, it was hoped that scores from the questionnaire would reflect respondents' unbiased perceptions of family life, rather than their views of how they would like others to think of their families.

METHOD

Participants

There were 791 participants in this study. These included 457 young adult university students recruited through undergraduate psychology lectures at University College Dublin, 132 adolescents recruited through secondary schools in counties Longford and Westmeath of rural Ireland, 5 children and parents recruited through a family therapy clinic in Dublin, 51 children and parents recruited through a paediatric cystic fibrosis clinic in a university hospital in Dublin, and parents of 146 people with intellectual and physical disabilities recruited through disability services in Dublin, Cork and Limerick. The demographic characteristics of participants are given in Table 1.

Instruments

To validate the SCORE, participants completed not just the SCORE, but also a series of instruments which assessed family and individual adjustment. Instruments were selected for inclusion in the assessment protocol if they were brief, and if they had good psychometric properties. For valid conclusions to be drawn about the relationship between the SCORE and other indices of family and individual adjustment, it

was essential that there be good evidence of their reliability and validity. Brief instruments were selected so as to minimize the time and stress for study participants. In the area of family functioning the following instruments were used: the 12-item, self-report, General Functioning Scale of the McMaster Family Assessment Device – (FAD, Ryan et al., 2005), the 3-item, self-report, Kansas Parenting Satisfaction Scale (KPS, James et al., 1985), the 3-item, self-report, Kansas Marital Satisfaction Scale (KMS, Schumm et al., 1986), and the clinician-rated Global Assessment of Relational Functioning scale (GARF, Yingling et al., 1998). The following instruments were used to assess the psychological adjustment of family members: the 5-item, self-report, Satisfaction with Life Scale (SWLS, Diener et al. 1985), the 5-item, self-report Mental Health Inventory – 5 (MHI-5, Berwick et al., 1991), and the 20-item total problems scale of the parent and self-report versions of the Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997; Goodman et al., 1998). To assess a ‘faking good’ response set, a 5-item, Social Desirability Rating Scale – 5 (SDRS-5, Hays et al., 1989) was included in the assessment protocol. In addition, participants completed a 9-item demographic questionnaire which incorporated the Irish census-based social class scale (O’Hare et al. 1991). In the present study, all of the multi-item self-report or parent-report scales which assessed individual or family adjustment had internal consistency alpha reliability coefficients above .8. This shows that they had excellent reliability.

Procedure

The project was conducted with ethical approval of involved institutions, and informed consent of all participants. The first author (PC) collected data in a group format from young adult university students and non-clinical adolescents in lecture theatre or classroom situations. At the paediatric and disability service sites, research assistants with a primary degree in psychology trained by the second author (KOR) collected data on a case-by-case basis. Data were also collected on a case-by-cases basis at the family therapy site by a trained family therapist. All participants were invited to complete the SCORE, FAD, SWLS, SDRS-5 and demographic questionnaire. Young adults also completed the MHI-5. Non-clinical adolescents and adolescents from the family therapy and paediatric services also completed the self-report SDQ. Parents from family therapy, paediatric and disability services also completed the KPS, KMS, MHI-

5 and parent-report SDQ. For families from the paediatric and disability services, case key workers who had adequate familiarity with participating families completed the clinician-rated GARF. Data were collected on two occasions 28-32 days apart from 85 young adults to assess the test-retest reliability of the SCORE.

Data collection procedures were very effective and there were very few missing data. Complete data were collected for all items on the SCORE from 758/791 or 96% of all cases; on the FAD from 778/791 or 98% of all cases; and on the SWLS and SDRS-5 from 785/791 or 99% of all cases. Complete data were obtained for all MHI-5 items from 646/659 or 98% of possible cases. Complete data were collected for all SDQ total problem scale items from 286/334 or 86% of possible cases. Complete data on all KMS items were collected from 183/202 or 91% of possible cases. Complete data on all KPS items were collected from 188/202 or 93% of possible cases. On the clinician-rated GARF there were data for 72/202 or only 36% of possible cases. However, this low proportion of GARF data reflects the difficulty the research team had in identifying key workers with sufficient clinical familiarity with families to confidently make GARF ratings.

Data analysis

Version 14 of the Statistical Package for the Social Sciences, (SPSS) and MPlus 3.11 software packages were used for data analysis (Muthén, 2004; Muthén, & Muthén, 2004; SPSS, 2007). Data were entered item-by-item in an anonymised format into an SPSS file and were verified and checked by a second rater.

RESULTS

What is the factor structure of the SCORE?

To address the first research question, a principal components analysis with VARIMAX rotation was conducted on the 40 items with 6-point response formats from the SCORE-40. Factorability of the correlation matrices was calculated and significant results were obtained on both the Kaiser-Meyer-Olkin (Kaiser, 1974) measure of sampling adequacy and on Bartlett's (1954) test of sphericity. Solutions with up to six factors had eigenvalues greater than 1 and met the Kaiser-Guttman retention criteria (Bentler &

Bonnet, 1980; Kaiser, 1974). Inspection of the scree plot of eigenvalues associated with factor structures showed a clear ‘elbow’ at the 3-5 factor solutions (Catell, 1966). Up to 3-5 factors explained most of the variance in the SCORE-40 items, and the addition of further factors explained relatively small additional amounts of variance. In view of this, three-, four-, and five-factor solutions were analysed. Following a detailed examination of each of the factor models, a three-factor solution was selected for two reasons. First, it was the best approximation of a simple factor structure with the fewest number of cross-loadings. Second, it was judged to offer the most clinically and theoretically coherent and parsimonious representation of the data. The three-factor solution was further refined by removing items with low loadings, low communalities, and high cross-loadings. The refined three-factor solution is presented in Table 2.

The refined, three-factor solution contained a 13-item factor, which accounted for 13.5% of the variance of the SCORE-40 and assessed family strengths; a 9-item factor which accounted for 8.4 % of the variance and assessed family communication; and a 6-item factor which accounted for 6.1% of the variance and assessed family difficulties. The first factor was labelled family strengths because items that loaded on this factor assess aspects of family functioning important for making therapeutic progress such as ‘In my family we talk to each other about the things that matter to us’ and ‘We are good at finding new ways to deal with things that are difficult’. The second factor was labelled family communication because items that load on this factor assess family communication style, for example, ‘In my family we blame each other when things go wrong’ and ‘People in our family lie to each other’. The third factor was labelled family difficulties because items that load on this factor assess the types of difficulties and problems that are often a focus of clinical concern such as ‘Life in our family is very difficult’ or ‘We seem to go from one crisis to another in my family’. Collectively the three factor solution presented in Table 2 contains 28 items and so we called the short version of the SCORE that incorporates these three factors, the SCORE-28.

The factorial validity of the three-factor solution identified through exploratory principal components analysis, described above, was tested through confirmatory factor analysis of a random sample of 401 cases selected from all cases in the study. Confirmatory factor analysis was computed with MPlus

3.11 (Muthén, & Muthén, 2004). The results of the confirmatory factor analysis showed that the three-factor solution fitted the data well. What follows are the statistical fit indices for this solution. The Chi-square statistic was significant ($\chi^2 = 337.402$, $df = 91$, $p < .001$). The Comparative Fit Index (CFI, Bollen & Long, 1993) was above the required threshold of .90 (CFI = 0.915). The Tucker-Lewis Index (TLI, Bollen & Long, 1993) was above the required threshold of 0.95 (TLI = 0.979). The Root Mean Square Error of Approximation (RMSEA, Browne, & Cudeck, 1993) was at the threshold of 0.08 (RMSEA=0.082). The Standardised Root Mean Residual (SRMR, Muthén, 2004, 2009) was below the required threshold of 0.07 (SRMR = 0.051).

The results of the exploratory principal components analysis and confirmatory factor analysis supported the first hypothesis that a small number of factors involving a subset of items form the SCORE-40 would emerge from factor analysis. Specifically we found that a 28-item version of the SCORE containing three distinct factor scales that assess family strengths, difficulties and communication was statistically and clinically, the most coherent solution.

How reliable is the SCORE-28?

To address the second research question, internal consistency and test-retest reliability analyses were conducted. The internal consistency reliability of the SCORE-28 total and each of its scales was evaluated with Cronbach's alpha (Cronbach, 1951). The alpha coefficients were .93 for the SCORE-28 total, .91 for the family strengths scale, .86 for the family communication scale and .83 for the family difficulties scale. These reliability coefficients are all above .8 which is the criterion for excellent internal consistency reliability (Bland & Altman, 1997).

Pearson correlations were used to evaluate test-retest reliability, using SCORE data collected from 85 young adults on two occasions 28-32 days apart. The correlations between scores obtained on the first and second occasions were .89 for the SCORE-28 total, .88 for the family strengths scale, .83 for the family communications scale, and .71 for the family difficulties scale. All of these correlations were significant at $p < .001$. Test-retest correlations above .7 are considered satisfactory, while those above .8 are considered good (Rodgers, & Nicewander, 1988).

The results of reliability analyses supported the second hypothesis, and showed that the SCORE-28 total and its three constituent subscales (family strengths, difficulties and communication) have excellent internal consistency reliability, and satisfactory to good test-retest reliability.

Do SCORE-28 scales correlate with other measures of family and individual adjustment?

To address the third research question, and evaluate the construct validity of the SCORE-28, Pearson correlations were computed between the SCORE-28 scales and other indices of family and individual adjustment. These correlations are presented in Table 3. To control for type 1 error, associated with conducting multiple statistical tests, a conservative p value of .01 was used, and in all instances two tailed tests were used. All of the correlations between SCORE-28 scales and other indices of family and individual adjustment were significant at $p < .01$ with the exception of the correlation between the SCORE family communication scale and the GARF which was not significant ($r = -.15, p > .05$). To interpret this table it is useful to consider the overall magnitude of correlations. Correlations with an absolute value greater than .8 are considered strong; those which fall between .5 and .8 are moderate, and those below .5 are weak.

Looking first at correlations between the SCORE-28 and other measures of family functioning, there was a strong correlation ($r = .82$) between the SCORE-28 total and the FAD, and moderate correlations ($r = .58$ to $.76$) between each of the SCORE-28 family strengths, difficulties and communications scale and the FAD. Furthermore, the correlations between the SCORE-28 and the FAD were higher than the correlations between the SCORE and any other index of family or individual functioning. This is as expected since the FAD, like the SCORE-28, assesses overall family functioning from a self-report perspective.

Correlations between the SCORE-28 and the GARF (which is a clinician-rated indicator of overall family functioning), were moderate ($r = -.29$ to $-.40$) for the SCORE-28 total, and the family strengths and difficulties scales, but the correlation between the SCORE family communication scale and the GARF was negligible ($r = .15$), as mentioned previously.

Correlations between the SCORE-28 scales and the KMS and KPS (which are self-report measures

of satisfaction with marital and parenting relationships) were moderate ($r = .25$ to $.45$), with one exception. There was a low correlation ($r = .23$) between the SCORE-28 family communication scale and the KPS.

There were moderate correlations ($r = .29$ to $.46$) between the SCORE-28 scales and visual analogue rating scales of the severity and impact of family problems, both of which are from the last five items on the SCORE-40.

With regard to correlations between the SCORE-28 and measures of individual adjustment, there were moderate correlations ($r = -.26$ to $.45$) between the SCORE-28 and the SWLS, MHI-5 and the total problems scale of the SDQ. However, there was one exception. There was a low correlation ($r = .24$) between the SCORE-28 family strengths scale and the MHI-5.

The results of these correlational analyses support the third hypothesis and show that the SCORE-28 scales have good construct validity. The SCORE-28 scales correlated most highly with another well established measure of overall family functioning (the FAD). With a few exceptions, they correlated moderately with clinician rated family functioning, self-report measures of marital and parenting satisfaction, and family-reported measures of parental or child adjustment.

Do SCORE-28 scales correlate with demographic variables or social desirability response set?

To address the fourth research question correlations between SCORE-28 scales and demographic variables and the SDRS-5 were computed. These are given in Table 3. There were no theoretical reasons to expect significant correlations between the SCORE-28 scales and demographic variables. Furthermore, it was expected that the SCORE would not be influenced by a social desirability response set, so negligible correlations between the SCORE-28 scales and the SDRS-5 were expected. Pearson correlations were computed for continuous variables and point biserial correlations were used to assess relationships between continuous and dichotomous variables. To control for type 1 error a conservative p value of $.01$ was used; in all instances two tailed tests were conducted; and correlations were interpreted in terms of their overall magnitude as described in the previous section. Low correlations ($r = .02$ - $.20$) occurred between SCORE-28 scales and gender, education, socio-economic status, family structure (1 or 2 parent), and the SDRS-5. There was one exception to this. There was a low moderate significant negative correlation ($r = -.25$, $p <$

.01) between the SCORE-28 family communication scale and socio-economic status, indicating that low socio-economic status was associated with more family communication problems. There were unexpected significant, low-moderate, negative correlations between age and the SCORE-28 total ($r = -.25$), family strengths ($r = -.28$), and family communication ($r = -.25$), scales, indicating that older respondents reported more family problems on the SCORE-28. However, the main result from these correlational analyses supported the fourth hypothesis, that responses on the SCORE-28 would not be strongly associated with demographic characteristics or social desirability response set.

DISCUSSION

The aim of this project - to develop a short version of the SCORE and validate it for use in an Irish context – was achieved. The SCORE-28 is presented in an appendix to this paper. Using data from over 700 Irish cases, the SCORE-28 containing three factor scales that assess family strengths, difficulties and communication was identified through exploratory principal components analysis. Confirmatory factor analysis showed that the factor structure of the SCORE-28 was stable. Reliability analyses showed that the SCORE-28 and its 3 constituent factor scales have excellent internal consistency reliability, and satisfactory to good test-retest reliability. Correlational analyses showed that the SCORE-28 has construct validity. Its scales correlated most highly with a well established measure of overall family functioning, and moderately with clinician-rated family functioning, self-report measures of marital and parenting satisfaction, and family-reported measures of parental or child adjustment. Correlational analyses also showed the SCORE-28 scales were not strongly associated with demographic characteristics or social desirability response set. This latter point is important because it means that responses on the SCORE-28 are not influenced by ‘faking good’.

It is noteworthy that the 3-factor structure of the SCORE-28 did not conform to the five a priori domains used by Bland et al. (2007) to generate items for the SCORE-40. Indeed some items from the atmosphere, conflict, expressiveness, rules and functionality domains loaded on the three SCORE-28 factors of family strengths, difficulties and communication. However, the concepts of family strengths, difficulties and communication are central to many models of family therapy (Carr, 2006), and have an

intuitive appeal for marital and family therapists. Confirmatory factor analyses have been conducted separately for the clinical and non-clinical subsamples within the overall sample and the three-factor solution fit the data. However, due to space limitations the results of these have not been reported in the paper.

The main limitation of the study was that with a few exceptions, participants were not clients attending a family therapy service. There is the possibility that data collected from such cases would yield a slightly different factor structure than that obtained in the present study. Attempts to recruit family therapy cases through three different services yielded very few complete data sets. The time taken to complete the assessment protocol was the main impediment to data collection. However, it is hoped that by shortening the protocol to include only the SCORE-28, collection of data from Irish family therapy services will become viable. A telephone-based survey of an Irish national random sample of parents to establish Irish norms for the SCORE-28 is currently underway. It will be informative to see if the results of these studies are consistent with those of the current study, and those of the UK-based SCORE studies, which are nearing completion.

REFERENCES

- Bartlett, M.S. (1954). A note on the multiplying of factors for various chi-square approximations. *Journal of the Royal Statistical Society*, 16, 296-298.
- Bentler, P.M. & Bonnet, D.G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588-606.
- Berwick, D., Murphy J., Goldman et al., (1991). Performance of a five-item mental health screening test. *Medical Care*, 29, 169-176.
- Bland, J., Stratton, P., & Janes, E. (2007). *Steps towards a usable outcome measure for family therapy clinicians*. Paper presented at the EFTA /AFT Conference, Glasgow October. 2007. Accessed on the 3rd February 2009 from www.leeds.ac.uk/lihs/documents/presentations/SCORE%20powerpoint%20pres%20Oct07.ppt
- Bland, J.M. & Altman. D.G. (1997). Statistics notes: Cronbach's alpha. *British Medical Journal*, 314, 572-575.
- Bollen, K.A. & Long, S.J. (1993). *Testing structural equation models*. London: Newbury Park.
- Browne, M.W., & Cudeck, R. (1993). Alternative ways of estimating model fit. In K.A. Bollen and S.J. Long (Eds.). *Testing Structural Equation Models* (pp.136-162). London: Newbury Park.
- Carr, A. (2000). *Empirical approaches to Family assessment*. Special Guest Edited Issue of the *Journal of Family Therapy*, Volume 22, No. 2.
- Carr, A. (2006). *Family Therapy: Concepts, Process and Practice (Second Edition)*. Chichester: Wiley.
- Carr, A. (2007). *The Effectiveness of Psychotherapy. A Review of Research prepared for the Irish Council for Psychotherapy*. Dublin: ICP.
- Carr, A. (2009a). The effectiveness of family therapy and systemic interventions for child -focused problems. *Journal of Family Therapy*, 31, 3-45.
- Carr, A. (2009b). The effectiveness of family therapy and systemic interventions for adult-focused problems. *Journal of Family Therapy*, 31, 46-74.
- Carr, A. (2009c). *What Works with Children, Adolescents and Adults? A Review of Research n the Effectiveness of Psychotherapy*. London: Routledge

- Catell, R.B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research*, 1, 219-235.
- Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika*, 16, 297-334.
- Department of Health (1996). *NHS Psychotherapy Services in England, Review of Strategic Policy*. London: HMSO.
- Department of Health (1997). *The New NHS: Modern, Dependable*. London: HMSO.
- Department of Health (2001). *Treatment Choice in Psychological Therapies and Counselling: Evidence Based Clinical Practice Guideline*. London: HMSO.
- Department of Health (2004). *Organising and Delivering Psychological Therapies*. London: HMSO.
- Diener, E, Emmons, R.A., Larsen, R.J. & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71-75.
- Expert Group On Mental Health Policy (2006). *Report of the Expert Group on Mental Health Policy- A Vision for Change*. Dublin: Stationary Office.
- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Goodman, R., Meltzer, H. & Bailey, V. (1998) The Strengths and Difficulties Questionnaire: A pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry*, 7, 125-130.
- Hays, R., Hayashi, T., & Stewart, A. (1989). A five-item measure of socially desirable response set. *Educational and Psychological Measurement*, 49, 629-636.
- James, D. E., Schumm, W. R., Kennedy, C. E., Grigsby, C. C., Sheckman, K. L., & Nichols, C. W. (1985). Characteristics of the Kansas Parental Satisfaction Scale among two samples of married parents. *Psychological Reports*, 57, 163-169.
- Janes, E. (2005). Self Report Measures of Family Function & Change Following Family Therapy: a Review of Conceptual Issues, Existing Measures and Proposals for Improvement. Available at: www.psyc.leeds.ac.uk/staff/p.m.stratton/

- Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, 39, 31-36.
- Mellor-Clark, J. & Barkham, M. (2006). The CORE system: quality evaluation to develop practice-based evidence base, enhanced service delivery and best practice management. In C. Feltham & I. Horton (Eds.), *The Handbook of Counselling and Psychotherapy* (Second Edition, pp. 207-244). London: Sage Publication.
- Muthén, B.O. (2004). *General Latent Variable Modelling, Advances in Mplus 3*, Workshops, SMABS conference, Jena, Germany.
- Muthén, B.O. (2009). *Mixture modelling web discussion thread*, accessed on 15th February 2009 from www.statmodel.com.
- Muthén, L.K. & Muthén, B.O. (2004). *MPlus User's Reference Guide*. Los Angeles, USA: Muthén & Muthén.
- O'Hare, A., Whelan, C.T., & Commins, P. (1991). The development of an Irish census-based social class scale. *The Economic and Social Review*, 22, 135-156.
- Rodgers, J.L., & Nicewander, W.A. (1988). Thirteen ways to look at the correlation coefficient. *The American Statistician*, 42, 59-66
- Ryan, C., Epstein, N., Keitner, G., Miller, I. & Bishop, D. (2005). *Evaluating and Treating Families. The McMaster Approach*. New York: Routledge.
- Schumm, W.R., Paff-Bergen, L.A., Hatch, R.C., Obiorah, F.C., Copeland, J.M., Meens, L.D., & Bugaighis, M.A. (1986). Concurrent and discriminant validity of the Kansas Marital Satisfaction Scale. *Journal of Marriage & the Family*, 48, 381-387

SPSS (2007). *Statistical Package for the Social Sciences*, Version 14.0. Chicago, USA: SPSS Inc.

Stratton, P. (2005). *Report on the Evidence base of Systemic Family Therapy*. Association of Family Therapy. Report downloaded from www.aft.org.uk accessed on the 21st July 2009.

Stratton, P., McGovern, M., Wetherell, A., & Farrington, C. (2006). Family therapy practitioners researching the reactions of practitioners to an outcome measure. *Australian and New Zealand Journal of Family Therapy*, 27, pp.199–207.

Yingling, L. C., Miller, W. E., McDonald, A. L., & Galewaler, S. T. (1998). *GARF assessment sourcebook: Using the DSM-IV global assessment of relational functioning*. New York: Brunner/Mazel

ACKNOWLEDGEMENTS

Thanks to the HSE for funding clinical psychology research and training sponsorships to support the project. Thanks to research assistants and colleagues at Tallaght Hospital, Limerick Early Intervention Service, the Brothers of Charity Cork Disability Service, Cheeverstown House, the Central Remedial Clinic, Hessed House, the School of Psychology at University College Dublin, Secondary Schools in Longford and Westmeath for facilitating data collection. Thanks to all participants at these centres for their involvement.

Table 1. Demographic characteristics of respondents

Variable	Young Adult n=457		Adolescent n=132		Family Therapy n=5		Paediatrics n=51		Disability n=146		Total N = 791	
Gender												
Male	135	30%	104	79%	1	20%	13	25%	9	6%	262	33%
Female	322	70%	28	21%	4	80%	38	75%	137	64%	529	67%
Age of respondents (years)												
< 14	0	0%	0	0%	1	20%	3	6%	0	0%	4	1%
15-16	0	0%	124	94%	0	0%	2	4%	0	0%	126	16%
17-18	147	32%	7	5%	1	20%	4	8%	1	1%	160	20%
19-20	195	43%	1	1%	0	0%	1	2%	0	0%	197	25%
21-22	56	12%	0	0%	0	0%	0	0%	2	1%	58	7%
23-24	10	2%	0	0%	0	0%	0	0%	2	1%	12	2%
25-29	14	3%	0	0%	1	20%	0	0%	15	10%	30	4%
30-34	14	3%	0	0%	0	0%	9	18%	27	19%	50	6%
35-39	8	2%	0	0%	0	0%	6	12%	39	27%	53	7%
40-44	4	1%	0	0%	0	0%	14	28%	31	22%	49	6%
45+	9	2%	0	0%	2	40%	11	22%	25	17%	47	6%
(missing)	0	--	0	--	0	--	1	--	4	--	5	--
	min	max	min	max	min	max	min	max	min	max	min	max
	17 yrs	55 yrs	15yrs	19yrs	12yrs	63yrs	12yrs	52yrs	18yrs	55yrs	12yrs	63yrs
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	20.8	5.5	15.7	0.6	35.6	23.5	36.1	11.6	37.8	7.5	24.1	10.1
Role within the household												
Mother	16	4%	0	0%	2	40%	33	64%	138	94%	189	24%
Father	2	0%	0	0%	1	20%	8	16%	8	6%	19	2%
Son	133	29%	104	79%	0	0%	4	8%	0	0%	241	31%
Daughter	306	67%	28	21%	2	40%	5	10%	0	0%	341	43%
(missing)	0	--	0	--	0	--	1	--	0	--	1	--
Number of people living within the household												
two people	18	4%	3	2%	2	40%	4	8%	9	6%	36	5%
three people	72	16%	14	11%	1	20%	6	12%	32	22%	125	16%
four people	146	32%	43	33%	1	20%	22	43%	56	38%	268	34%
five people	126	28%	42	32%	1	20%	12	24%	33	23%	214	27%
six people	73	16%	21	16%	0	0%	6	12%	11	8%	111	14%
seven people	20	4%	6	5%	0	0%	0	0%	4	3%	30	4%
eight people	2	0%	3	2%	0	0%	1	2%	1	1%	7	1%
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	4.5	1.2	4.7	1.2	3.0	1.5	4.3	1.2	4.1	1.1	4.5	1.2
Employment of highest earner within household												
Unemployed	13	3%	4	3%	3	60%	3	7%	20	17%	43	6%
Unskilled manual	9	2%	12	10%	2	40%	3	7%	8	7%	34	5%
Semi-skilled manual	14	3%	21	16%	0	0%	1	2%	10	9%	46	6%
Skilled manual	40	9%	18	14%	0	0%	8	19%	21	18%	87	12%
Other non-manual	25	5%	21	16%	0	0%	4	9%	24	21%	74	10%
Lower professional	127	28%	34	26%	0	0%	10	23%	9	8%	180	24%
Higher professional	229	50%	22	17%	0	0%	14	33%	24	21%	289	38%
(missing)	0	--	0	--	0	--	8	--	30	--	38	--
Highest level of education reached												
Primary school	0	0%	0	0%	5	100%	9	18%	20	14%	34	4%
Junior Cert	0	0%	132	100%	0	0%	7	14%	20	14%	159	20%
Leaving Cert	395	86%	0	0%	0	0%	14	28%	27	19%	436	55%
Prof. Certificate	26	6%	0	0%	0	0%	13	26%	51	35%	90	11%
Primary degree	21	5%	0	0%	0	0%	5	10%	19	13%	45	6%
Higher degree	15	3%	0	0%	0	0%	1	2%	8	6%	24	3%
(missing)	0	--	0	--	0	--	2	--	1	--	3	--
Country of origin												
Ireland	398	87%	119	90%	5	100%	49	98%	133	94%	704	90%
United Kingdom	18	4%	7	5%	0	0%	1	2%	0	0%	26	3%
Other EU country	14	3%	3	2%	0	0%	0	0%	1	1%	18	2%
Non-EU country	27	6%	3	2%	0	0%	0	0%	8	6%	38	5%
(Missing)	0	--	0	--	0	--	1	--	4	--	5	--
Words that best describe your family												
Positive terms	351	77%	85	64%	2	40%	27	53%	116	79%	581	73%
Negative terms	23	4%	18	14%	1	20%	4	8%	8	5%	54	7%
Positive & negative terms	83	18%	29	22%	2	40%	20	39%	22	15%	156	20%
Biggest problem for family right now												
Family relationships	57	12%	32	24%	0	0%	4	11%	11	8%	104	14%
Communication problems	37	8%	21	16%	1	20%	3	9%	3	2%	65	9%
Health / illness	85	19%	15	11%	1	20%	22	63%	92	71%	215	28%
Financial problems	145	32%	22	17%	0	0%	2	6%	15	12%	184	24%
No problems at the moment	107	23%	28	21%	2	40%	2	6%	5	4%	144	19%
Other problems	26	6%	14	11%	1	20%	2	6%	4	3%	47	6%
(missing)	0	--	0	--	0	--	16	--	16	--	38	--
Visual Analogue Scales												
In relation to 'main problem'	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
no problem (0) - awful (100)	53.4	22	52.6	28	73.0	26	45.3	26	37.1	28	51.8	25
no affect(0) - spoils life (100)	47.2	22	47.0	28	66.2	19	39.5	24	37.3	27	46.1	24
Looking for help totally wrong(0) exactly right (100)	--	--	54.3	31	51.6	16	61.7	33	54.0	38	55.0	33
How you felt about completing the SCORE												
Positive	207	45%	60	45%	3	60%	22	43%	106	73%	398	50%
Negative	148	32%	49	37%	2	40%	8	16%	17	11%	224	28%
Indifferent / no response	102	22%	23	17%	0	0%	21	41%	23	16%	169	21%

Table 2. Three factor solution from the exploratory principal components analysis with varimax rotation refined by removing items with low factor loadings, low communalities and high cross loadings on different factors.

	SCORE-40 Item No	SCORE questionnaire item	Exploratory Factor Analysis Factor Loadings		
Family Strengths	30	In my family we talk to each other about the things that matter to us	0.735	0.238	0.034
	31	We are good at finding new ways to deal with things that are difficult	0.716	0.191	0.123
	9	If something is going wrong in our family we know we can change it	0.711	0.159	0.176
	20	When one of us is upset they get looked after within the family	0.689	0.204	0.153
	6	Our family shares enjoyable times together	0.678	0.184	0.197
	2	People do things that show that they care about each other in my family	0.658	0.215	0.049
	17	In our family it is OK to show how you feel	0.657	0.260	0.140
	33	We trust each other	0.623	0.331	0.205
	14	Each of us gets listened to in our family	0.621	0.373	0.141
	1	Being in this family is important to us	0.608	0.178	0.078
	15	People in my family are willing to change their views about things	0.591	0.279	-0.003
	21	Respecting elders is important in our family	0.539	0.103	0.084
	3	We are a very organised family	0.525	0.137	0.094
Family Communication	25	In my family we blame each other when things go wrong	0.247	0.697	0.227
	7	One person tends to get blamed for everything in my family	0.218	0.662	0.165
	24	People in our family lie to each other	0.320	0.634	0.137
	8	People often don't tell each other the truth in my family	0.292	0.616	0.125
	32	People in the family are nasty to each other	0.268	0.604	0.256
	12	When people in my family get angry they ignore each other on purpose	0.208	0.599	0.149
	5	People in my family interfere too much in each other's lives	0.185	0.586	0.100
	36	People slam doors, throw things or make a lot of noise if they are upset	0.140	0.554	0.190
18	In my family people prefer to watch TV than to spend time with each other	0.333	0.522	0.132	
Family Difficulties	13	Life in our family is very difficult.	0.155	0.318	0.676
	38	We seem to go from one crisis to another in my family	0.186	0.293	0.673
	22	It feels miserable in our family	0.277	0.313	0.662
	26	Things always seem to go wrong for my family	0.181	0.304	0.660
	19	Other people look down on my family because we are different	0.052	0.166	0.584
11	We find it hard to deal with everyday problems	0.118	0.321	0.565	

Note: N = 791. Factors extracted using principal components analysis with varimax rotation. Items 27 and 35 were deleted because they had low factor loadings, less than .32. Items 16, 27, 28, 34, 35, 37, and 39 were deleted because they had low communalities, less than .3. Items 4, 10, 23, 27, 29, 37, and 40 were removed because they had high cross-loadings on different factors, with the absolute difference between the largest factor loadings being less than 0.15

Table 3. Correlations between SCORE-28 scales and other variables

Domain	Variable	SCORE -28 Total	Family Strengths	Family Communi- cation	Family Difficulties
SCORE SCALES	SCORE -28	1			
	Family Strengths	89	1		
	Family Communication	87	62	1	
	Family Difficulties	72	45	58	1
SCORE Visual Analogue Scale	Problem severity	36	30	29	37
	Problem impact	46	37	38	43
RATINGS					
	FAMILY VARIABLES				
	FAD General Family Functioning	82	76	66	58
	GARF Observed family functioning	-40	-29	-15	-44
KPS Parent Satisfaction	-33	-25	-23	-30	
KMS Marital Satisfaction	-45	-36	-33	-38	
PSYCHOLOGICAL ADJUSTMENT	SWLS Life Satisfaction	-39	-33	-27	-44
	MHI-5 Mental Health	-32	-24	-26	-36
	SDQ Total child problems	45	35	43	40
DEMOGRAPHICS	Age	-25	-28	-25	-02
	Gender (0=male, 1 =female)	-11	-08	-16	-03
	SES 7 pt scale(1 =Low – 7 =High)	-12	-02	-12	-25
	Education 6 pt scale(1 =Junior school – 7 =Higher degree)	-18	-09	-20	-14
	Single-parent family (0=no, 1=yes)	14	11	10	19
RESPONSE SET	SDRS-5 Social Desirability	03	-06	04	09

Note: Correlations in bold are significant at $p < .01$.

**Appendix
Family Life**

<p>We would like you to tell us about how you see your family at the moment. So we are asking for YOUR view of your family. When people say ‘your family’ they often mean the people who live in your house. But we want you to choose who you want to count as the family you are going to describe. All the questions are answered the same way: You put a tick ✓ in the box which best matches how you see your family. So if a statement was “Our family wants to stay together” and you really feel this fits you completely, you would put a tick in box 1 on that line for “extremely well”.</p>							
<p>If a statement was “We are always fighting each other” and you felt this was not especially true of your family, you would put a tick in box 5 for “not well”.</p>							
<p>For each item, make your choice by putting a tick ✓ in just one of the boxes numbered 1 to 6. Do not think for too long about any question, it is how they all add up that we will be interested in, rather than any specific answers. But do try to tick one of the boxes for each question.</p>							
	For each line, would you say:	1 Extremely well	2 Very well	3 Well	4 A bit	5 Not well	6 Not at all
S28-1	Being in this family is important to us						
S28-2	People do things that show that they care about each other in my family						
S28-3	We are a very organised family						
S28-4	People in my family interfere too much in each other’s lives						
S28-5	Our family shares enjoyable times together						
S28-6	One person tends to get blamed for everything in my family						
S28-7	People often don’t tell each other the truth in my family						
S28-8	If something is going wrong in our family we know we can change it						
S28-9	We find it hard to deal with everyday problems						
S28-10	When people in my family get angry they ignore each other on purpose						
S28-11	Life in our family is very difficult.						
S28-12	Each of us gets listened to in our family						
S28-13	People in my family are willing to change their views about things						
S28-14	In our family it is OK to show how you feel						
S28-15	In my family people prefer to watch TV than to spend time with each other						
S28-16	Other people look down on my family because we are different						
S28-17	When one of us is upset they get looked after within the family						
S28-18	Respecting elders is important in our family						
S28-19	It feels miserable in our family						
S28-20	People in our family lie to each other						
S28-21	In my family we blame each other when things go wrong						
S28-22	Things always seem to go wrong for my family						
S28-23	In my family we talk to each other about the things that matter to us						
S28-24	We are good at finding new ways to deal with things that are difficult						
S28-25	People in the family are nasty to each other						
S28-26	We trust each other						
S28-27	People slam doors, throw things or make a lot of noise if they are upset						
S28-28	We seem to go from one crisis to another in my family						
S28-A	What do you think is the biggest problem/challenge for the family at the moment?						
S28-B	It is now no problem at all 1 2 3 4 5 6 7 8 9 10 It is really awful						
S28-C	It doesn’t affect us much 1 2 3 4 5 6 7 8 9 10 It totally spoils our family life						

Family Strengths (FS): 13 times are added without reversal (123456) and divided by 13. FS= (1+2+3+5+8+12+13+14+17+18+23+24+26)/13
 Family Difficulties (FD): 6 items are reversed scored (654321), added and divided by 6. FD=(R9+R11+R16+R19+R22+R28)/6
 Family Communication (FC): 9 items are reversed scored (654321), added and divided by 9. FC= (R4+R6+R7+R10+R15+R20+R21+R25+R27)/9
 SCORE-28 Total Family Adjustment = (1+2+3+5+8+12+13+14+17+18+23+24+26+ R9+R11+R16+R19+R22+R28+ R4+R6+R7+R10 +R15+R20+R21+R25+R27)/28