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ABSTRACT
          Focusing on how the definition and assessment of
quality day care are culturally specific, this paper reviews the
development and validity of the Child Care Facility Schedule (CCFS),
a procedure for assessing quality in child care settings in many
countries. This project was initiated by the Division of Mental
Health of the World Health Organization, and began with a pilot study
undertaken in Greece, Nigeria, and the Philippines. This initial
study resulted in an 80-item schedule covering 8 areas that define
quality child care: physical environment; health and safety;
nutrition and food services; administration; staff-family
interaction; staff-children interaction; observable child behavior;
and curriculum. Concurrent validity, criterion validity, and
construct validity were examined by comparing CCFS scores in 12 day
care centers with ratings based upon observation in the same centers.
An additional study of 90 day care centers in Athens, Greece, further
established CCFS validity. Results showed that the CCFS was reliable
and valid. The use of a shorter 43-item version is suggested to
render the measure more practical. (MM)

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ASSESSING QUALITY DAY-CARE:

THE WHO CHILD CARE FACILITY SCHEDULE

by

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in International Perspective", SRCD Conference, New
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Introduction

The main aim of today's presentation is to describe the development of an instrument for the assesssment of quality in day-care settings for use in different cultures, and to demonstrate its reliability and validity with a sample of day-care centres. To achieve this it was decided to examine several types of validity.

The debate on whether day care is, compared to maternal care, beneficial or not for children has moved on to questions concerning the quality of day care provided (Phillips and Howes, 1987). Based on evidence stemming from the longitudinal research into day care, it has been argued that where the day care is meeting the needs of the child in certain areas better than they could be met at home the child will benefit from being in the day care setting (Hennessy and Melhuish, 1991).

In other words optimal child development appears to be linked to high quality day care. Yet researchers, planners and clinicians as well, do not seem to have reached a consensus on defining and assessing quality care (Kontos and Stevens, 1985). Questions that have been raised relate to the hypotheses being addressed, the domain of child outcome being measured and the approach to measuring quality (Phillips and Howes, 1987; Zaslow, 1991). As summarized by Phillips and Howes (1987) research concerning the approach to measuring quality, primarily in the United States, has focused either on the global aspect of quality reflecting the overall climate of a program (e.g. the Day Care Envi-

ronmental Inventory by Prescott, Kritchevsky and Jones, 1972, and the Early Childhood Environment Rating Scale by Harris and Clifford, 1980) or on specific dimensions of child care. The latter encompasses structural aspects of child care, such as group composition and staff qualification; dynamic aspects of child care concerned with children's daily experiences; and contextual aspects of child care, such as type of setting and staff stablity.

Attempts at assessing quality day-care in non-Western cultures include an instrument which was developed in Malaysia tapping upon seven areas of care (Yusof, 1983) and a a set of questions and criteria which were developed for use in Latin America to help parents select day-care centres for their children (Etchegoyhen de Lorenzo and Newcomb, 1984).

Defining quality is inherently a value-based issue which is faced so much by planners and policy makers as by researchers (Moss, 1991; Moss and Melhuish, 1991). The study reported here, emerged out of a concern regarding the extent to which cefinition and assessment of quality day care, being value-based, is culturally specific. The Division of Mental Health of the World Health Organization (Geneva) initiated the development of a new instrument to be developed jointly by several cultures lying on different points on the continuum of social change. The aim was to provide a procedure for assessing quality in child-care settings for a broad range of countries.

The development of criteria for quality assurance of
care, ensuring both the physical and psychosocial well-
being, lies among the interests of WHO's Mental Health Pro-
gramme.

Preliminary research on the Child Care Facility Sched-
ule (CCFS) was carried out in 1983 by a Collaborative
Child Care Project working group. The pilot study was
undertaken by three participant countries, namely Greece,
Nigeria and the Philippines.

A starting point for work on the Schedule was a care-
ful review of existing criteria, particularly those
developed by the U.S. National Association for the Educa-
tion of Young Children for accrediting centres in the
United States. These criteria were recast into simple
declarative statements, reflecting conditions that could
easily be observed upon a visit to a centre or else that
called for information that could be secured through a
brief interview (Caldwell, 1984).

By consultation with colleagues from the three pilot
centres a draft 80-item schedule covering the important
areas of day-care operation was created. Emphasis was
placed on the relevance to each country involved and on
ease of scoring. Items were translated by a translator
into each national language and then back-translated into
English by another translator. The back translations were
then checked for meaning and accuracy.

This draft was used in a number of day-care centres
representing different levels of quality (high-moderate-

low) in Athens (N=20), Manila (N=15) and Ibadan N=91).
The items chosen were found to be relevant in each setting
and we~e easy to apply. Training of the observers in the
use of the schedule was established. The length of the
observation time was two hours approximately.

The result of this initial undertaking was the cre-
ation of an 80-item schedule covering eight important
areas that define quality child-care: Physical Environ-
ment, Health and Safety, Nutrition and Food Services,
Administration, Staff-Family Interaction, Staff-Children
Interaction, Observable Child Behaviour, and Curricu-
lum. (TABLE 1)

Subsequently, an inter-rater reliability study was
taken up in both Athens and Ibadan, with a sample of 69
day-care centres in total, to check the consistency of
ratings by different observers on different occasions,
while remaining blind to each other's ratings. The time
interval between ratings ranged from six to ten days in
the Greek study, and one to four weeks in the Nigerian
study. Reliability ranged from .83 for the Health and
Safety category to .99 for the Nutrition and Food Service
category, in the Greek study, while overall reliability
was .94 in the case of Nigeria (Tsiantis et al., 1991).

Validity

The establishment of the validity of an instrument
undoubtedly remains one of the very difficult problems in
psychometrics and there is no one satisfactory solution.
Thus researchers need to assess the validity of an

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instrument in a number of ways. Concurrent validity,
criterion validity and construct validity were examined in
the present case.

Method

Details of the validity procedures

Concurrent validity was examined by comparing the CCFS
scores with ratings based upon observation. An experienced
observer spent a full day in each of twelve day-care
centres, at a different time than the interviewer who completed
the CCFS. The observer examined the environment, the cli-
mate and the interactions, the daily curriculum and the
activities in general while she remained non-paricipatory
She was not familiar to the content of the Schedule but
she was instructed to focus her observation on specific
areas. These areas were in ract the eight areas of care
defined by the CCFS. At the end of the second day the
observer assessed each day-care centre on the above dimen-
sions on a 4-point scale, similar to the CCFS one.

Criterion validity was ascertained by comparing the
CCFS scores with the scores resulting from another, simi-
lar in content and scope, widely used scale, the Early
Childhood Environment Rating Scale (ECERS) by Harms and
Clifford (1980). Thus quality of every single day-care
centre was assessed by both scales.

The construct validity was ascertained by a factor
analytic method. The construct validity of a test presup-
poses a process of three phases. The first phase in the
present case, refers to the development of the hypotheses

and assumptions raised by the initial members of the WHO Collaborative Child Care Project working group regarding the criteria for high quality programs. The second phase of construct validity establishment refers to the gradual development of the Schedule and the creation of the eight areas which define quality of day-care. The third phase concerns the empirical testing of those.

Sample

A sample of 90 day-care centres in the Athens area were selected with random stratified sampling. The sample represents 15% of the total number of day-care centres in the area and is representative of every type of centre; state-operated (N=45) private (N=29, including the ones created by the trade-union of big public corporations), those belonging to public welfare institutions (N=10) and those operated by the municipality of Athens (N=5). Four interviewers visited about 23 day-care centres each. They were previously rigorously trained and satisfactory reliability (r = .93) among the interviewers was secured.

Results

In examining concurrent validity the Pearson product-moment correlation coefficient between the overall ratings of the observer and those of the CCFS was obtained. The correlation was r = .81 (p < .01). In other words the observer and the interviewers who completed the Schedule assessed the same characteristics in a similar fashion.

Moreover, the mean scores of the two assessments were compared for each area of concern, separately. A paired

t-test revealed that for the areas of "Physical Environment", "Administration", "Staff-Children Interaction", "Observable Child Beahaviour and "Curriculum" there were no differences between the observer's mean ratings and the CCFS scores. The t-values differed in three areas. These were "Health and Safety", "Nutrition and Food Services" and "Staff-Family Interaction". These differences were attributed to the fact that assessment of those areas is based much less on direct observation and much more on the response to questions presented to the personnel by the interviewer.

Criterion validity was tested by comparing the CCFS scores with the ECERS ones. The Pearson product-moment correlation coefficient between the two sets of scores which were first transformed into standard z-scores, was $r = .80$ ($p < .001$). This correlation was considered very satisfactory. Correlation between a new instrument and a similar earlier one is an evidence that the new one, measures approximately the same general concept as the other (Anastasi, 1976).

The overall mean scores of the two instruments were compared with paired t-tests. The t-values were significantly different (ECERS: 2.66, CCFS:3.05, $t = -14.07$, $p < .000$). The higher CCFS score could possibly be attributed to the fact that the ECERS focuses more than does the CCFS, on characteristics relating to the curriculum, to the sophistication of materials and to language/reasoning activities. In other words the ECERS seems to focus on

somewhat different dimensions of quality. Moreover, the CCFS is on a 4-point scale while the ECERS is on a 7-point scale, hence probably more difficult for raters to use.

A principle components factor analysis with varimax rotation was performed in order to test for construct validity. In an eight factor solution, following the areas designated originally, the first factor appeared to be very strong providing thus more like a one factor solution. The total variance explained is 57%; the first factor contributing 30% and the second 7% (Tables 1 and 2). The rest of the factors explain very small percentages each, and they include few significant variables which make no clear meaning. The first factor includes characteristics from all eight areas. In other words, it is the case of a one overwhelming goodness factor.(TABLES 2 and 3)

A further factor analysis was completed requesting only four factors, in order to compare the results with those obtained by the first analysis. The first factor was just as strong and the content was very similar to the one which emerged from the first analysis.

Looking at the structure of the first factor the greater number of significantly loading items (eigen-value > .35), are characteristics alluding to the human element responsible for quality day-care. A large number of variables included in this factor refer to those aspects of personnel, curriculum and environment which encourage and promote a calm and pleasant atmosphere, cre-

ativity and decision making in children, group participa-
tion and individuation at the same time. The structure of
the second, much less important, factor refers more to the
infrastructure of the day-care. In other words, quality
of care is greatly attributed to the human factor. It is
noted that other Greek and international attempts of
quality day-care assessment, have revealed one general
quality factor as well (Lambidi and Todoulou, in prepara-
tion; McCartney, 1984; Phillips, McCartney and Scarr,
1987).

Thus, while the constructs initially conceived as
representing quality day-care are being reconfirmed, the
eight distinct areas, were not clearly discriminated.
Moreover the items which loaded significantly onto the two
first factors are only 43, a lot fewer that the initial
number of 80 items constituting the Schedule. The CCFS
scores of the shorter 43-item version were once more cor-
related with the ECERS scores. This correlation was found
to be $r = .76$ ($p < .001$). This means that the Schedule may
be shortened, becoming thus much easier to administer.

A cluster analysis of the 90 day-care centres revealed
three clusters; the third being a very small one compris-
ing only five day-care centres. The overwhelming majority
of centres is included in the first two clusters. Fifty
nine centres are included in the first cluster and 20 in
the second. Looking at the composition of each cluster it
was revealed that the first cluster is comprised of centres
where the quality of care is good while the other is com-

prised of centres where the quality is much poorer. Thus again this dichotomy of goodness versus badness in the quality provided, was apparent.

Assessment of quality day-care

The CCFS scores were used to compare the quality of care provided by the different types of day-care centre (state-operated, private, operated by the municipality of Athens, and by public welfare institutions).

A one-way ANOVA revealed that private day-care centres had the highest scores (F = 9.38, p < .0000, df 3). The Scheffe procedure denoted that the significantly different pair at the .05 level, was the state-operated and private day-care centres. This difference was in the expected direction judging from previous findings with a smaller respective sample of day-care centres (Tsiantis et al., 1988). However, it must be taken into consideration that the number of day-care centres operated by the municipality and by public welfare institutions is proportionately very small since it was a stratified sampling.

Looking at the previous data, the range of CCFS scores derived from observation of the private day-care centres was very wide; i.e. the higher and the lower CCFS scores were given to private centres (ibid). A rank order of the day-care centres in the present study, revealed that 87% of the centres belonging to the first quadrant are state-operated while 68% of the centres belonging to the fourth quadrant are private ones. Interestingly, the first two highest scores were given to centres operated by the

trade-union of the two biggest national banks in Greece.

The four types of centres were also compared along the eight areas of care provision. On the dimension of Physical Environment, private day-care centres had the highest scores (F = 6.46, p <.0005); the pair significantly different being the private and the state-operated centres.

For the Health and Safety provided at the day-care, all types of centres differed among themselves; the highest mean score belonging to those centres operated by public welfare institutions and the second high to private centres (F = 6.80, p <.0004). The Scheffe procedure showed that three pairs were significantly different; the private and state-operated, the private and the ones operated by welfare institutions, and the state-operated and the ones operated by welfare institutions. No differences were noted for the Nutrition and Food Services category.

The Administration was another area of great differences. These differences were expected since the four types of centres vary inherently in this respect. Private centres had the highest score (x = 2.98), the second being the centres operated by the municipality (x = 2.89) (F = 26.03, p <.0000). The only two pairs which were not significantly different were the private and municipal ones, and the ones operated by welfare institutions and the municipality.

In terms of Staff-Family Interaction, the differences noted were the ones between the state-operated and the

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private ones, the latter having higher scores (F = 3.56, p<.01). Similar was the case for the Children-Family Interaction (F = 5.29, p =.002).

In the area of Observable Child Behaviour, the mean scores differed among the various types, the highest score alloted to the centres operated by the municipality (x = 3.57) and the second high to the private ones (x = 3.42). Yet the significantly different pair was the state-operated and the private centres. Finally, as far as the Curriculum is concerned private centres had the highest scores and the significant difference remained the one between private and state-operated centres.

Discussion

The results show that the WHO Child Care Facility Schedule is a reliable instrument and a valid one, in a variety of ways. Concurrent and criterion validity were satisfactory. The observation conducted by the observer who was unfamiliar to the content of the Schedule, yielded similar scores to the ones provided by the CCFS. The correlation between the CCFS and the ECERS score was quite high, confirming that the new instrument is similar enough but has its own distinct character and is not a mere duplication.

Testing for construct validity an overall quality factor was revealed showing once more that good things go together in child-care. The use of a shorter 43-item version of the Schedule is suggested, thus rendering it more practical. Looking at the first two factors, it seems that

the human element and its contribution to personal and collective differentiation, is of paramount importance while the technical infrastructure is secondary. At times when the emphasis is greatly directed towards material goods and technical perfection, the above results provoke our priorities. This certainly does not imply that appropriate materials and space are not indispensary presuppositions for the maximization of both the educators' and the children's potential. Furthermore the results of the cluster analysis confirmed the fact that centres belonging to the "high quality" cluster rank high in both psychosocial and physical aspects of care.

In using the CCFS we were able to identify differences among the various types of day-care centres in the expected direction. The quality of care provided by the private day-care centres was shown to be higher in previous and current work (Tsiantis et al., 1988; Lambidi and Todoulou, in preparation). Efforts of organizing care where the private initiative represented by differentiated either centre owners or personnel syndicates, seem to secure high quality care.

In closing, I would like to suggest that a centre's personnel can also benefit from the use of the CCFS for self-evaluation, in terms of the provision of a structure for setting goals for improvement in their work. Already in Portugal the CCFS was used for such a purpose with 250 centres in the Lisbon area (Caldeira et al., 1992).

Finally, it should be stressed that issues of quality definition, assessment and attainment in the field of child-care, are not to remain only within the realm of the researcher's interests. There are key policy issues and are intricately connected to the challenges faced by planners in the field of primary prevention.

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Table 1 Areas covered by the CCFS

1. Physical Environment

2. Health and Safety

3. Nutrition and Food Services

4. Administration

5. Staff-Family Interaction

6. Staff-Children Interaction

7. Observable Child Behaviour

8. Curriculum

Table 2   First CCFS Rotated Factor

Items	Loadings
3.Sounds are moderate and pleasant (PE)	.56
4.Sufficient and appropriate materials (PE)	.46
6.Areas available where children can be somewhat alone occasionally (PE)	.38
14.Centre meets standards for protection of health and safety (HS)	.47
20.Staff attentive to each child's health and development (HS)	.57
28.Meal times used to promote good nutrition (NFS)	.45
51.Regular training opportunities for staff to improve skills in working with children (A)	.38
56.At least once a year a staff member individually discusses child's progress with parents (SFI)	.45
59.Staff encourage children to share experiences and feelings and are responsive to childrens'needs(SCI)	.70
60.Staff speak to children in friendly, positive and courteous manner (SCI)	.67
61.Staff respect childrens'cultural backgrounds(SCI)	.71
62.Staff encourage a degree of independence in children compatible with their developmental maturity(SCI)	.48
63.Staff use positive reinforcement and encouragement (SCI)	.79
64.Staff respect child's right to choose not to participate in group activities occasionally(SCI)	.54

Table 2 continued

65.Children appear to be comfortable, relaxed,happy   .67

    and involved in their activities(OCB)

66.Children respect needs, feelings and property   .65

    of others(OCB)

67.Children respond appropriately to caregivers'   .57

    requests(OCB)

69.Children are friendly to staff, to one another   .57

    and to visitors(OCB)

70.Children do not become disorganized or unruly   .62

    when changing from one activity to another(OCB)

71.Realistic curriculum goals based on childrens'   .66

    individual needs and interests(C)

72.Daily schedule provides variety of activities(C)   .60

73.Developmentally appropriate learning opportunities   .76

    for children(C)

74.Activities foster positive self-concepts and   .81

    social skills in children(C)

75.Teaching/learning activities encourage language   .77

    development and help children improve ability to think,

    reason, question and experiment(C)

76.Teaching/learning activities encourage creative   .68

    expression(C)

77.Teaching/learning activities enhance physical   .61

    development and skills(C)

Table 2 continued

78.Teaching/learning activities encourage good   .65

  health habits(C)

79.Time is allowed for children to choose their own   .52

  activities and appropriate materials are provided(C)

eigenvalue = 24.00, R = 30.0

PE = Physical Environment, HS = Health and Safety,

NFS = Nutrition and Food Services, A = Administration

SFI = Staff-Family Interaction, SCI = Staff-Children

Interaction,   OCB   =   Observable   Child   Behaviour,

C = Curriculum

Table 3 Second CCFS Rotated Factor

Items	Loadings
2.Indoor environment attractive and pleasant(PE)	.50
7.Outdoor area is safe(PE)	.58
8.Outdoor area provides space and opportunity for vigorous activities(PE)	.38
9.Separate area for sleeping is provided(PE)	.43
10.Centre looks clean and well-cared for(PE)	.70
11.Toilets, soap and water accessible to children(PE)	.58
12.All rooms are well-lighted(PE)	.66
13.All rooms are well-ventilated(PE)	.65
17.Instructions for handling medical emergencies(HS)	.37
18.Centre assumes responsibility for safe arrival and departure of children(HS)	.48
19.Children carefully supervised(HS)	.45
22.Staff follow everyday hygienic principles in looking after the children(HS)	.42
25.First-aid kit available on the premises(HS)	.45
29.Standards for serving food are complied with(NFS)	.64
30.Eating utensils properly washed and stored(NFS)	.62

eigenvalue = 5.5, R = .6.8

PE = Physical Environment, HS =Health and Safety,

NFS = Nutrition and Food Services