

Development and Validation of a Dream Content Questionnaire for School Age Children

Oliviero Bruni, M.D., Floriana Lo Reto, M.D.,
Annamaria Recine, M.D., Salvatore Ottaviano, M.D.,
and Vincenzo Guidetti, M.D.

Developmental studies of dream content have demonstrated that children's dreams reflect the ego and personality development. We designed a study to objectively evaluate the dream content through questionnaire and determine the relationship with personality traits. Three questionnaire were administered to a sample of 80 children from a school of Rome: 1) Dream Content Questionnaire for Children (ChDCQ): derived from a retrospective questionnaire on the dream contents for adult based on classification method of Hall and Van de Castle and Hunt.; 2) Student Sleep Habits Questionnaire (SSHQ) with question about sleep, somnolence and circadian typology; 3) the Eysenck Personality Inventory Junior (EPIj). The ChDCQ showed a good level of internal consistency (Cronbach's $\alpha = 0.81$) and a good temporal stability. Factor analysis extracted seven factors: accounting for 52.81% of the variance: 1. Aggression; 2. Friendliness; 3. Inhibition of aggressiveness; 4. Characters and sexual interactions; 5. Negative emotions; 6. Positive emotions; 7. Bizarreness/Archetypal. Personality traits correlated with several ChDCQ factors: Psychoticism with aggression and inhibition of aggressiveness, friendly interactions and positive emotions; Extraversion with aggression, characters and sexual interactions and archetypal; Neuroticism with inhibition of aggressiveness, negative emotions and archetypal. Gender differences have been found in ChDCQ; male dreams have higher contents of Aggression while female dreams showed more Friendliness and Negative or Positive Emotions. Our study showed that the ChDCQ was well accepted, easy to fill out and not time-consuming. It could be used for evaluating the differences in dream content in clinical groups (i.e. children with major depressive disorders and anxiety disorders) and also for assessing the relationships with other tests (i.e. personality or sleep questionnaires). (Sleep and Hypnosis 1999;1:41-46)

Key words: dream, questionnaire, child, personality, sleep disturbances

INTRODUCTION

In the last few years dream research in children has largely focused on dream content and structure. The dreams have been studied mostly through narrative reports or audiotapes or direct interviews either in laboratories (1) or in the home settings (2).

Developmental studies of dream content, using scales

From the Department of Developmental Neurology and Psychiatry University of Rome "La Sapienza", Rome, Italy.

Address reprint requests to: Dr. Oliviero Bruni, Dept. Developmental Neurology and Psychiatry University of Rome "La Sapienza" Via dei Sabelli 108 - 00185 - Rome, Italy.
Phone: +39 06 44712257 Fax: +39 06 4957857
e-mail: obruni@axrma.uniroma1.it

Questionnaires could be requested from the first Author.

for measuring dream, have demonstrated that children's dreams reflect the ego and personality development (3,4). The dream content in latency age children was directly related to the predominant foci of his social adjustment during wakefulness (5) and the sequence of things dreamed were very close to the sequence of things feared in waking life (6).

Although the descriptions that the younger children offered did not necessarily report the actual content of their dreams, due to the limitations of the vocabulary; in the latency age group or later we can expect that the dreams' description is more reliable and not filled with fantasies or events of the day (7). As Piaget reported, at 9-10 years, the child experiences the dream as taking place internally and also as being thoughts occurring internally, therefore at this age we can expect a reliable report of the dream (8).

From laboratory studies it has been argued that children's dream are realistically related to the waking life mostly describing ordinary play and recreational activities while dreams are more bizarre and unpleasant when children present personality disturbances (9).

Most recently dream research focused on the evaluation of dreams contents by retrospective questionnaires. This kind of questionnaires attempt to measure general patterns of dream content and are easier and less time-consuming than collecting and scoring dream diaries. However, they have been rarely psychometrically assessed (10,11).

The similarity of the use in a therapeutic context and the evidence of a continuity between waking and dreaming experience can support the rationale for the use of a dream questionnaire in this age group.

Recently, a dream content questionnaire-based on classification method of Hall and Van de Castle (12) and Hunt et al. (13) has been psychometrically validated for adults (14). Because this kind of questionnaires does not exist for children, we translated and adapted a dream questionnaire for adults to school age children with the Author's permission. Further, since the analysis of dream content could represent a window for evaluating the correlation between sleep and personality, especially in children, we designed a study to objectively and empirically determine the relationship between the manifest dream content and the personality traits.

METHODS

Instruments

For the purpose of the study we used 3 questionnaires to be filled out by the children:

Dream Content Questionnaire for Children (ChDCQ): This questionnaire derived from a retrospective questionnaire on the dream contents for adults. In the Italian translation some items were modified to make them comprehensible for the children. Initially all 63 items were retained and pre-tested on a sample of 30 children; then, after repeated measures of item-reliability and internal consistency, 15 items were omitted and others were clarified. The final questionnaire (ChDCQ) consisted of 44 Likert-type items (4=often, 3=sometimes, 2=occasionally and 1=never) and 3 items that investigated about the frequency of dream recall, nightmares and look forward to dreams.

Student Sleep Habits Questionnaire (SSHQ) (15) consisted of questions that children could be expected to have knowledge of, including: time to fall asleep, bedtime and risetime hours, total sleep time, sleep quality, daytime sleepiness, insufficient sleep. Four scales were included in the questionnaire: the Sleepiness Scale for children (SSC; adapted from the Epworth Sleepiness Scale), the Sleep Disturbance Index (SDI), the Emotional State Scale (ES) and the Morningness-Eveningness questionnaire (MEQ).

Eysenck Personality Inventory Junior (EPIj) that evaluated three personality traits: Psychoticism; Extraversion; Neuroticism.

Subjects and procedure

Data were collected from a school of Rome that accepted to participate in the study. The goal and the design of the study were previously explained to the parents and the teachers during a meeting and we asked for the cooperation and for the permission of the director of the school. The participation was voluntary assuring anonymity and the non-availability of the material for the teachers. The children had to fill out the questionnaires as part of the classroom activities.

The study followed two steps: 1. during the first meeting we distributed the first set of questionnaires composed of ChDCQ, EPIj, SSHQ. The forms were distributed and collected by the researchers; 2. after 15 days, a retest on the ChDCQ was performed on a sample of 30 children randomly selected to evaluate temporal stability.

The instructions for filling the ChDCQ were to refer to recent dreams or any other dream that they remembered because of the emotional content. We preferred this kind of administration because by letting the child choose the dream or the dreams to describe could increase the chances of identifying themes related to stage-specific developmental conflicts (16). We also stressed to honestly report dreams.

Five classrooms were randomly selected and 107 children accepted to participate. Eighty children completed the study (return rate 74,8%): the final sample was composed of 37 males and 43 females (mean age 11,15 years - range 9-13 years).

To evaluate the psychometric properties of the ChDCQ, the following statistical analyses were performed: internal consistency (Cronbach's α); test-retest reliability (Spearman's r); factor analysis with principal component method and varimax rotation. Correlation analysis was performed to evaluate the relationship between the different questionnaires and the factors of the ChDCQ.

RESULTS

Analysis of the frequency items of the ChDCQ

The item related to the number of dream recalled in a week showed that 2,5% of the sample were able to recall more than 6 dreams, 32,5% 3 to 6 dreams, 50% 1 to 2 dreams; only 15% referred to recall no dreams. The occurrence of nightmares was reported never or rarely from 72.5% of children; sometimes from 20% and often from 7.5% of the sample. The majority of children (60%) looked forward to dream.

Item-reliability and internal consistency

The ChDCQ showed a good level of internal consistency (Cronbach's α = 0.81) with the item-total correlations ranging from .17 to .47. The value did not significantly increase after the deletion of the items with low correlation (Table 1).

The test-retest reliability on 30 children showed a good temporal stability with r score ranging from .13 to .84 with about half exceeding r =.50.

Factor analysis

To determine the number of factors to extract scree-plot and eigenvalues were examined and seven factors were extracted, accounting for 52.81% of the variance (Table 2). All items loaded above .30. Factors were interpreted as follows:

1. Aggression (8 items; $=.84$) because items referred to aggressor or participation in the aggression;

2. Friendliness (7 items; $=.70$) with items related to friendly interactions and good fortune;

3. Inhibition of aggressiveness (10 items; $=.77$): in this factor loaded items related to being victim or witness of the aggression or feeling angry without the possibility to express the aggressiveness and items associated with confusion;

4. Characters and sexual interactions (5 items; $=.56$) because of the presence of both male and female characters and the presence of sexual interactions;

5. Negative emotions (4 items; $=.67$) characterised by feelings of sadness, apprehension and fear;

6. Positive emotions (3 items; $=.58$) with items related to tranquillity and happiness;

7. Bizarreness/Archetypal (7 items; $=.78$): in this factor loaded items related to experiences of mythical characters, settings and themes, to sensory hallucinations and to fantasies or unusual circumstances.

Factor scores were derived as sum of items loading in each factor.

Correlation analysis

Significant correlation were found between the Psychoticism trait and several ChDCQ factors, particularly with those related to action of (.43) and inhibition of aggressiveness (.30), and friendly interactions (-.24) and positive emotions (-.24); Extraversion correlated with aggressiveness (.23), sexual interactions (.24) and archetypal (.32) while Neuroticism correlated with inhibition of aggression (.43), negative emotions (.34) and archetypal (.36). The somnolence scale correlated only with archetypal. The Sleep Disturbance Index and the Emotional State Scale correlated with inhibition of aggressiveness, negative emotions, and action of aggressiveness. The evening type correlated with inhibition of aggressiveness and archetypal (Table 3).

Gender differences (M vs. F) have been found in the following ChDCQ factors: Aggression (15,6 vs. 12,9; $p < 0.05$), Friendliness (21,4 vs. 23,3; $p < 0.05$); Negative (7,7 vs. 9,6; $p < 0.005$) and Positive Emotions (8,5 vs. 9,9; $p < 0.005$).

Splitting the sample based on some questions of the SSHQ and analysing differences between the mean ChDCQ factor scores through t-test for independent samples, we found that children self-reported as poor sleepers (9/80; 11,25%) showed significant differences in the following ChDCQ factors and personality traits: Positive Emotions (8 vs. 9,4; $p < 0.05$) and Neuroticism (10,8 vs. 7,1; $p < 0.01$). Children that self-esteem to have insufficient sleep (19/80; 23,75%) showed also differences in Aggression (16,6 vs. 13,3; $p < 0.05$), in Bizarreness/Archetypal (17,9 vs. 14,6; $p < 0.05$) and Neuroticism (10,2 vs. 6,6; $p < 0.005$). Finally nightmares

Table 1. Item total correlation of ChDCQ items.

	Item-total correlation	if item deleted
1A	.26	.87
1B	.40	.86
1C	.34	.87
1D	.47	.86
1E	.25	.87
1F	.20	.87
2	.32	.87
3	.33	.86
4	.38	.86
5	.41	.86
6	.39	.86
7	.30	.87
8A	.47	.86
8B	.38	.86
8C	.39	.87
9A	.34	.86
9B	.36	.87
10	.18	.87
11	.33	.86
12	.42	.87
13A	.19	.87
13B	.21	.87
14A	.25	.87
14B	.34	.87
15A	.41	.86
15B	.24	.87
15C	.36	.87
16A	.19	.87
16B	.21	.87
17	.23	.87
18	.20	.87
19	.46	.86
20A	.17	.87
20B	.38	.86
21A	.36	.87
21B	.42	.86
22A	.36	.87
22B	.35	.87
23A	.21	.87
23B	.32	.87
23C	.46	.86
23D	.47	.86
23E	.37	.86
23F	.17	.87

chronic sufferers (7,5% of the sample) showed no differences in any of the ChDCQ factors; only personality trait Psychoticism was significantly different (5,6 vs. 3,5; $p < 0.01$).

DISCUSSION

The present study showed that the ChDCQ could be used as an instrument to analyse the children's dreams and could allow to examine statistical relationships with other tests (i.e. personality or sleep questionnaires). The ChDCQ was well accepted from the children, was easy to fill out and

Table 2. Factorial solution for the Children Dream Content Questionnaire

	Eigenvalues	Variance explained	Loading
Factor 1: ACTION OF AGGRESSIVENESS			
1D. to feel anger	7,21	16.39%	.39
3. physical aggression			.81
6. aggressor in physical aggression			.77
8A. aggression direct toward men			.69
8C. aggression direct from yourself			.75
9B. participate in the violence or aggression			.64
14B. unfriendly interaction with dream's characters			.40
15A. aggressive interaction			.69
Factor 2 FRIENDLY INTERACTIONS			
	4,17	9.47%	
10. to be friendly			.68
11. initiate friendly interaction			.69
12. to hug people			.48
14A. friendly interactions with dream's characters			.75
15B. friendly relationship			.73
16A. to have good fortune			.61
17. to be with many people			.59
Factor 3 INIBITION OF AGGRESSIVENESS			
	3,04	6.91%	
1C. to feel confusion			.47
2. to get angry without physical aggression			.52
4. to get angry screaming			.45
5. to be scolded			.60
7. to be victim in a physical aggression			.40
8B. to be recipient of the aggression			.67
9A. to be witness the violence or aggression			.47
16B. to have misfortune			.65
18. not to be central character.			.60
21A. to feel general confusion			.53
Factor 4 CHARACTERS AND SEXUAL INTERACTIONS			
	2,7	6.16%	
13A. men characters			.45
13B. women characters			.59
15C. sexual interaction			.77
21B. to make decision that, upon awakening, seems illogical			.56
22A. to see or hear things that in waking life are relatively improbable			.48
Factor 5 NEGATIVE EMOTIONS			
	2,12	4.81%	
1B. to feel sadness			.58
1F. to feel apprehension (guilt, anxiety)			.65
20A. indoor settings			.65
23D. to feel afraid or surprise			.52
Factor 6 POSITIVE EMOTIONS			
	2,10	4.78%	
1A. to feel happiness			.57
1E. to feel tranquillity			.52
20B. outdoor settings			.52
Factor 7 BIZARRENESS/ARCHETYPAL			
	1,88	4.28%	
19. dream's scene change abruptting			.46
22B. to see things that in the real world are utterly physically impossible			.74
23A. to see characters or objects change in size, form or shape			.67
23B. to see your identity or that of somebody else changes		52.81%	.60
23C. to find yourself in other historical times			.80
23E. to encounter strange beings of a fantastic or mythological nature			.70
23F. to feel to be another person			.40
Total variance explained			

Table 3. Correlation between ChDCQ factors, personality traits and SSHQ scales

	EPIJ_P	EPIJ_E	EPIJ_N	SDI	EM_ST	MEQ	SSC
AGGRESSION	,43**	,23*	,18	,23*	,24*	-,16	,15
FRIENDLY INTERACTIONS	-,24*	,05	,13	-,16	-,01	-,02	-,03
INHIBITION OF AGGRESSIVENESS	,30*	-,09	,43**	,39**	,33*	-,39**	,21
SEXUAL INTERACTIONS	-,03	,24*	,18	-,13	-,18	-,21	-,12
NEGATIVE EMOTIONS	-,05	,02	,34*	,32*	,31*	-,17	,11
POSITIVE EMOTIONS	-,24*	-,02	-,15	,07	-,02	,13	-,04
BIZARRENESS/ARCHETYPAL	,14	,32*	,36**	,21	-,14	-,25*	,26

Legend: EPIJ_P= Psychoticism; EPIJ_E= Extraversion; EPIJ_N= Neuroticism; SDI= Sleep Disturbance Index; EM_ST= Emotional state; MEQ= Morningness-eveningness questionnaire; SSC= Somnolence scale for children; * = $p < 0.05$; ** = $p < 0.001$

not time-consuming. It had a good internal consistency and test-retest reliability. Factors extracted were very close to the main categories of Hall and Van de Castle and Hunt scoring methods.

Some limitations of the study should be noted: the collection of dreams was retrospective and from child's report rather than collected from the laboratory after awakenings from REM sleep; although the instructions to report dream honestly we are not sure that the part of dreams not clearly recalled were fulfilled with fantasies; our preliminary results should be confirmed on a larger sample and the concurrent validity should be assessed analysing the dream diaries.

However, as stated in the method, letting the child choose the dream or the dreams to describe could increase the chances of identifying themes related to stage-specific developmental conflicts and the selection of children older than 9 years assured to have the most reliable report possible because of the consciousness of the internal origin of the dreams. The other matter of controversy is the reliability of home versus laboratory dream report; systematic studies between home and laboratory dreams showed few or no difference (17). Furthermore, non-laboratory dream report that focus strictly on dream content and on "remembered dreams" are richer and more directed to emotional and unusual content (1) and may be useful for scientific studies (18).

Most of the children's dream studies are based on diaries and not on questionnaires. Apart from the question of what is the more reliable measure of dream experience, we have to evaluate the different use of the dream diaries and of the dream questionnaires: the former could be useful to collect different dreams and to assess immediate sleep mentation while the latter measure the general patterns of dream content and are more useful to evaluate relationships with other variables (i.e. personality traits, gender differences, sleep disturbances, etc.).

There have been few attempts to use dream questionnaires in children; recently a dream content questionnaire study in 8 to 18 years old children showed that the most represented themes were friendship or social relations, fighting or playing sports, social conflicts, worry or sad feelings; all these dream contents were dependent from gender (friendship, social interactions and emotions more represented in girls) and age (19). Although not factor analysed, the themes were very close to the ChDCQ factors and gender differences are similar to our study.

The relationships between personality traits and children's dreams have been poorly investigated; our study is one of the first attempts to apply this kind of questionnaire in children and to evaluate the relationships between dream contents and personality traits in children. Most studies analysed these relationships from a psychoanalytic point of view (20,21) reporting that dreams, and particularly nightmares, can indicate an area of vulnerability and function as defence and tension discharge.

Since the dream content in children is directly related to the predominant foci of social adjustment and is comprehensible from the simpler and more direct perspectives of a dream theory (5) we can justify the high correlations between some personality traits and the factors of the ChDCQ: Neuroticism correlated with dream contents of inhibition of aggressiveness, negative emotions and archetypal; while the Psychoticism trait correlated with aggression, inhibition of aggressiveness and negatively with positive emotions and could be explained through the propensity to suppress the aggressiveness and impulsiveness. Furthermore the negative correlation between psychoticism and positive emotions could be explained through the conflict between the need to express the aggressiveness and the impossibility to exhibit it.

A relationship between Psychoticism trait and aggressiveness has been reported also in adults (22); the findings on Neuroticism trait (related with inhibition of aggressiveness, negative emotions and archetypal) and on Extraversion (related with aggression, sexual interactions and archetypal) have been described in adults: Neuroticism correlated with negative emotions, aggression and misfortune; Extraversion with number of dream characters and social interactions. (10).

In our study nightmares sufferers showed no differences in dream content but slightly higher level of psychoticism. These results agreed with the report on the personality pattern in adults nightmare sufferers that was characterised by psychopathic deviate, schizophrenia and hysteria elements with schizoid pattern of adjustment (21).

Other studies are needed to assess the validity of the dream questionnaires in children, and to evaluate the stability over time. However, the present questionnaire could be a useful instrument for evaluating the differences in dream content in clinical groups (i.e. children with major depressive disorders and anxiety disorders) and also for assessing the relationships with personality.

REFERENCES

1. Foulkes D. *Dream Research: 1953-1993*. *Sleep* 1996;19:609-624.
2. Resnick J, Stickgold R, Rittenhouse CD, Hobson JA. *Self-representation and Bizarreness in Children's Dream Reports Collected in the Home Setting*. *Cognition and Consciousness* 1994;3:30-45.
3. Foulkes D. *Longitudinal Studies of Dreams in Children*. In Masserman J, ed. *Science and psychoanalysis*. New York: Grune and Stratton, 1971;49-64.
4. Hauri P, Sawyer J, Rechtschaffen A. *Dimensions of Dreaming: A factored Scale for Rating Dream Reports*. *Journal of Abnormal Psychology* 1967;72:16-22.
5. Foulkes D. *Children's dreams. Longitudinal studies*. New York: John Wiley and Sons, 1982.
6. Ames LB. *Sleep and Dreams in Childhood*. *Problems of Sleep and Dream in Children*. Harms E. ed. New York:1964.
7. Ablon SL, Mack JE. *Children's dreams reconsidered*. *Psychoanalytic study of the Child* 1980;35:179-217.
8. Piaget J. *The Child's Conception of the World*. New York: Harcourt Brace, 1929:88-122.
9. Foulkes D, Larson DL, Swanson EM, Rardin M. *Two Studies of Childhood Dreaming*. *American Journal of Orthopsychiatry* 1969;39:627-643.
10. Bernstein DM, Roberts B. *Assessing dreams through self-report questionnaires: Relations with past research and personality*. *Dreaming* 1995;5:13-27.
11. Kallmeyer RJ, Chang EC. *The Multidimensional Dream Inventory: Preliminary Evidence for Validity and Reliability*. *Perceptual and Motor Skills* 1997;85:803-808.
12. Hall CS, Van de Castle RL. *The content analysis of dreams*. Meredith Publishing Co., New York:1966.
13. Hunt H, Ogilvie R, Belicki K, Belicki D, Atalick E. *Forms of dreaming*. *Percept Mot Skills* 1982;54:559-633.
14. Bernstein DM, Belicki K, Gonzalez D. *The development and assessment of the reliability and validity of a dream content questionnaire (DCQ)*. *Sleep Research* 1995;24:138.
15. Carskadon M, Acebo C. *Student Sleep Habits Questionnaire, 1992*
16. Azzone P, Freni S, Maggiolini A, Provantini K, Viganò D. *How Early Adolescents Describe their Dreams: a Quantitative Analysis*. *Adolescence* 1998;33:229-244.
17. Foulkes D. *Home and laboratory dreams: four empirical studies and a conceptual reevaluation*. *Sleep* 1979;2:233-251.
18. Domhoff GW, Schneider A. *New Rationales and Methods for Quantitative Dream Research Outside the Laboratory*. *Sleep* 1998;21:398-404.
19. Cuenca JM, Domich L. *Tendency and Predominance of Dreams Matters and the Differences Related to Gender and Age from a Population of Pre and Adolescent Subjects*. *J Sleep Research* 1998;7: 53.
20. De Steiner CM. *Children and their Dreams*. *Int Journal of Psycho-Anal* 1993;74:359-371.
21. Mack JE. *Nightmares, Conflicts and Ego Development in Childhood*. *Int J Psycho-Anal* 1965;46:403-428.
22. Kales A, Soldatos CR, Caldwell AB, Charney DS, Kales JD, Markel D; Cadieux R. *Nightmares: Clinical Characteristics and Personality Patterns*. *Am J Psychiatry* 1980;137:1197-1201.