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GLOBAL QUALITY OF LIFE (QOL), HEALTH AND ABILITY ARE PRIMARILY DETERMINED BY OUR CONSCIOUSNESS. RESEARCH FINDINGS FROM DENMARK 1991–2004

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ABSTRACT. *Objective:* To explain the global quality of life (QOL) from 2000 indicators representing all aspects of life. *Design and setting*: Two cross sectional population studies, one prospective cohort study and one retrospective cohort study. *Participants: (1)* Representative sample of 2500 Danes (18–88 years), (*2*) 7222 members of the Copenhagen Perinatal Birth Cohort 1959–1961 (31–33 years), (*3*) 9.006 mothers and their 8820 children born in Copenhagen 1959–1961, (*4*) 746 Danes (55–66 years). *Main outcome measures:* Global QOL measured by SEQOL (self evaluation of QOL) containing eight global QOL measures: Well-being, life-satisfaction, happiness, fulfilment of needs, experience of temporal and spatial domains, expression of life's potentials and objective factors. *Results:* 2000 associations; strongest between QOL and health, ability, the personal philosophy of life, the relationships to oneself, the partner and friends; weakest between QOL and 1000 early life factors, 1000 life events and 100 objective factors like income. *Conclusions:* Quality of life is associated with personal health and attitude towards life, rather than objective factors, life style, or life events. We conclude that QOL can be developed independently and thus be used as medicine.

INTRODUCTION

The concept of Quality of life (QOL) has become an important topic both in the health field, social welfare and the political debate. Enhancing the QOL is more and more considered to be an objective in treatment and prevention of illness together with the provision of psychosocial support. For the last three decades QOL has been a major issue of debate in Denmark, and in recent years the concept of QOL or living "a good life" has been the subject of a

number of philosophical and psychological studies in Denmark (Aggernæs, 1989; Henriksen, 1992; Holm et al., 1994; Kemp, 1991; Merrick and Ventegodt, 2003; Sandøe, 1992; Ventegodt, 2003; Ventegodt & Merrick, 2003f; Ventegodt et al., 2003m–w). It is becoming increasingly apparent that illness is closely related to the individual perception of a good life, and therefore the exploration of indicators related to QOL appears to be of broad importance for the prevention and treatment of diseases.

Our search for describing QOL was built on the foundation that our QOL must be composed of items that are known to us. Therefore a comparative valuation of these items must be our chief instrument for deciding the degree of QOL of the person studied. The best QOL will be the state that contains the greatest number of items having a positive value according to our own estimate. In order to arrive at correct decisions as to which items should be included in the questionnaire, it was necessary to consider what we would judge to be good and consider what comparative values to attach each item. From this approach we created the self eveluation of QOL (SEQOL) questionnaire.

Identifying, which factors constitute a good life may reveal an understanding about what areas in life should be encouraged, in order to enhance the global QOL. In this paper we present results from studies initiated in 1989 to examine QOL in relation to disease. The purpose of this presentation is to assemble the results from the study carried out in the years between 1993 and 1997, examining a total of 11 000 Danes, to show the association between QOL and a wide series of social indicators, in the ambition to make an almost complete map of QOL and the factors determining QOL and health (Ventegodt, 1995a–b; Ventegodt, 1996a; Ventegodt, 2000). We include three major lines of indicators: indicators of the present life, indicators of the personal history (life events), and indicators from the beginning of life, including a series of social and biological factors. Our belief was that a part of the variation of QOL in the adult population could be explained by biological and social heritage, another part could be explained by life event – happy and unhappy – and a third part could be explained by the conscious choices in life, recently, here and now.

METHODS

To explore the association between QOL and the various different indicators, it was necessary to create a questionnaire that could describe the QOL of the persons studied (Ventegodt and Merrick, 2003e; Ventegodt et al., 2003c–i).

After preliminary background literature research that examined various methods of measuring the QOL, a study group on "quality-of-life research" was established in Copenhagen in order to investigate the field and identify a number of theories on the subject (Ventegodt, 1991; Ventegodt et al., 1992). A subgroup was formed to construct a questionnaire with the purpose of investigating the QOL empirically within selected cohorts. During 1991–1993, this questionnaire was revised and improved in 20 pilot studies through qualitative interviews. In addition, a number of pilot surveys on different groups refined the questionnaire further. We found it ready for use in its present form in 1993 (Ventegodt et al., 1994; Ventegodt et al., 2003f).

All four studies are based on the same SEQOL questionnaire (Ventegodt et al., 2003a,b), which measures the global QOL. The questionnaire consists of 317 items and based on an "integrative" theory of the QOL, a theoretical framework from a Danish QOL survey involving 7222 persons 31–33 year olds (Figure 1), measuring it across eight different global QOL dimensions (Ventegodt et al., 2003j). The integrative QOL theory was created to organize a number of theories on the QOL into a spectrum that spans the extremes of subjective and objective QOL. SEQOL is a self-administered questionnaires with items rated on five-point Likert scales. For validation SEQOL was send to 2460 persons 18–88 year olds randomly selected from the Danish Central Person Register(CPR-Register) together with the Nottingham Health profile (NHP), Sickness Impact Factor (SIP), and the test-retest reliability correlation was > 0.8, Cronbach's alpha was 0.75, correlation (r) to NHP was 0.49 to SIP 0.27 ($p < 0.05$). Adjustment for health status made the correlation to SIP stronger among the sick ($r = 0.41$). For SEQOL 111 respondents were needed to detect 3% difference in QOL. SEQOL is thus valid as it shows a

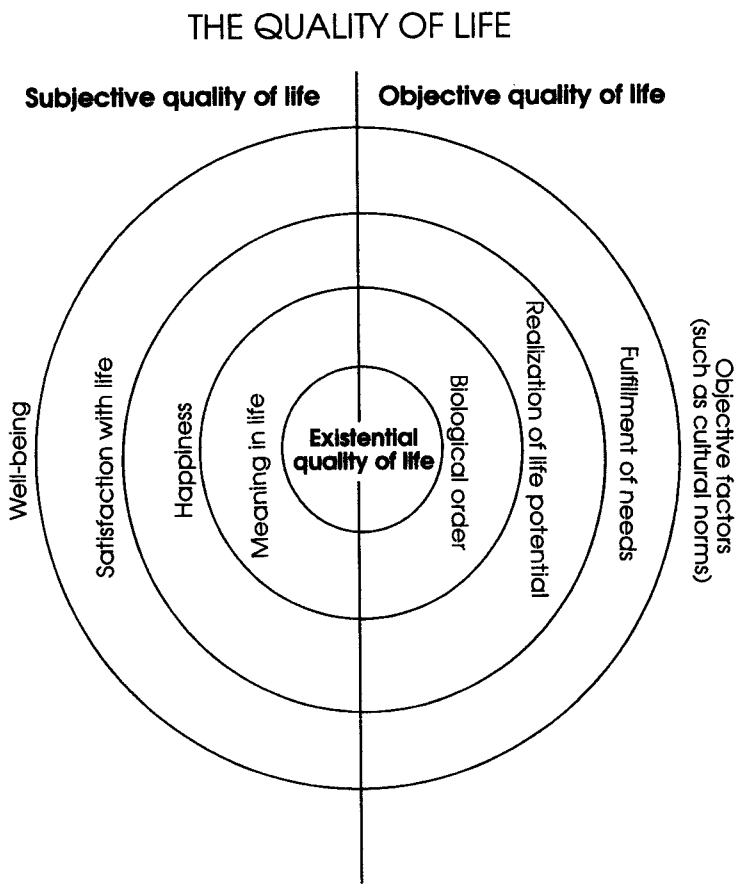

Figure 1. The integrative (IQOL) theory of the QOL. The individual can best be compared to a green apple with red patches (a subjective and an objective QOL, respectively at the surface of an individual's existence) with a hidden nucleus (humanity's inner depth). When this picture is combined with the picture of humanity as an onion with a number of layers between the surface and the nucleus, the taxonomy underlying the QOL analysis is achieved. Between life's surface and its inexpressible depth lies well-being, satisfaction, harmony and meaning and deep concord.

high level of reliability, sensitivity and consistency. For the calculation of the global QOL, 113 of the questions are used. The rest is control questions and questions giving more information about health status, sexuality, philosophy of

life, life style, self-perception, and social circumstances. The principle of SEQOL is that of a hierarchy of factors, adding up to an abstract total QOL.

These measures are showed below (sample questions from the questionnaire included):

Subjective Measures

1. Immediate, self-experienced well-being ("How are you feeling?").
2. Life satisfaction ("How satisfying is your life?").
3. Happiness ("How happy are you at present?").

Existential Measures

4. Fulfilment of needs (e.g., "How well are your social needs fulfilled?").
5. Experience of life's temporal domains (e.g., "How do you feel when you are at home?").
6. Experience of life's spatial domains ("How satisfied are you with [each of five domains: self, partner, family, friends, community]"?).
7. Expression of life's potentials (to which extent are they fulfilled).

Objective Measure

8. Objective factors (income, status and work etc.).

Replies to each of the questions that constitute these measures are weighted and scored to yield computable numbers between a minimum of 0 and a maximum of 100 (for technical details, see Ventegodt and Merrick, 2003e; Ventegodt et al., 2003c–i). These numbers are then taken as representing the QOL of the respondent, expressed in terms of the eight different ways the QOL has been measured by the questionnaire. Suitably weighted and scored, replies to the first part of the questionnaire constitute variables, the co-variation of which the QOL can be calculated.

Measuring QOL has been the subject for many disagreements through time. In our research, the global QOL – in the

most broad and all-including sense – is the primary outcome measure (dependent variable); the integrative QOL theory made us include 113 items in SEQOL questionnaire for the calculation of the global QOL(Ventegodt, 1996b).

In this study we had to deal with an essential problem: When the statistical connection between 113 life factors and the global QOL was measured, we often had a contribution to the statistical co-variation from the construction of the global QOL measure. Lets give an example: The objective QOL measure (no. 8) includes a question on having a partner or not:

Do you have a partner?

1 Yes.
2 In doubt.
3 No.

If a person says yes, and we want to analyse the statistical connection with marital status and global QOL, we will get a contribution from the way the objective QOL is defined and measured because having a partner gives a likelihood for being married.

This problem turned out to be of little significance, as even the most strongly "constructed" connections did not count for more that 1/15th of the total connection. Still this gives an error of up to 7% in co-variation, for which we have compensated in a further analysis.

A number (a–e) is added to the quantitative result in Tables I and II, and a part of Table IV, to add another dimension of reliability to the results, because we sometimes for technical reason suspected the co-variation would be different in another survey with more participants or another way of presenting the data. The mark a–e is called a "qualitative evaluation" of the size of the co-variation; it is our subjective estimate of the true size of the statistical co-variation, taking the above mentioned error into account and also the variation of numbers of respondents in each answering category; if we have too few respondents in some of the response categories we don't get the whole range of the curve (x, QOL) with our method of linear

TABLE I
Present life factors I

Quality of life and...	Mark*	QOL difference in % **
Self-assessed quality of life	a	56.9
Feeling good at home	b	55.9
Fulfilment of need to be useful	a	50.3
Fulfilment of basic biological needs	a	48.4
Feeling good during leisure	a	47.4
Personal resources	a	42.8
Fulfilment of needs for an exciting and varied life	a	42.2
View of life	a	41.5
Fulfilment of social needs	a	39.4
Relations with oneself	a	39.3
Self-perceived mental health	a	38.4
Satisfaction with one's relationship situation	a	37.6
Type of health problems	b	36.8
Fulfilment of need for self-realization	a	36.3
Weight and acceptance of own body (men)	b	35.8
Relations with friends	b	33.3
Unemployed persons' assessment of their own means	b	33.3
Self-perceived physical health	a	33.2
Self-image	b	33.1
Number of values	b	32.9
Important, daily personal contacts (men)	a	32.6
Relations with one's partner	a	32.2
Important, daily personal contacts (women)	b	31.6
Satisfaction with one's sex life (men)	b	30.9
Assessment of one's own means	b	30.8
Having a very close friend (men)	b	30.6
Unemployment with/without meaning of life	d	30.2
Number of severe health problems	a	29.8
Unemployed persons' assessment of their own means	a	29.3
Unemployment or meaningful employment	b	29.3
Mental disorders	b	27.6
The physical work environment	b	27.6
Single breadwinner	b	27.3
Satisfaction with one's own health	b	27.3
Unemployment at four educational levels	b	27.1
Relations with one's children	b	27.0

TABLE I
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Satisfaction with one's own means	b	26.7
Meaningful work	b	26.3
Mean occupation	c	26.0
Employed men with/without children/partner	b	25.0
Having a partner	b	23.6
Type of education	e	23.2
Disease diagnoses (main categories)	c	22.8
Meaning in life	b	22.7
Numbers of health problems	b	22.5
Satisfaction with one's sex life (women)	b	22.1
Under- and overweight (Body Mass Index) (women)	b	22.1
Sexual problems	c	22.1
Loneliness	b	21.7
Wide-raging values	b	21.7
Sick days last year	b	21.6
Marital status	b	21.5
Unemployment among women, by age	c	21.4
Co-habitants	c	21.1
Relations with society	b	20.9
Family social group	d	20.9
Contemplating suicide	b	20.6
The physical work environment	c	19.3
Satisfaction with work	b	19.1
Psychotropic drugs	c	19.0
Satisfaction with one's situation regarding children	c	18.9
Partner's annual income	d	18.8
Under- and overweight (Body Mass Index) (women)	c	18.7
The social work environment	c	18.2
Social group	e	18.0
Relations with nature	b	17.9
Acceptance of one's own body	c	17.8
"Masculine" and "feminine" values (women)	c	17.7
Current diseases and conditions (III)	c	17.6
Satisfaction with society	c	17.6
Children living at home	c	17.6
Having a sex life	c	17.1

TABLE I
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Important, daily personal contacts	c	17.0
Unemployment among men, by age	d	16.4
Housing	c	16.1
Relations with parents	c	15.9
Management position	d	15.8
Under- and overweight (Body Mass Index) (men)	c	15.7
Feeling part of a larger whole	c	15.4
Difference in educational levels (self/partner)	d	15.3
Vocational education	e	15.2
Abortions	c	15.1
Annual income	d	15.0
Number of biological children (men)	d	14.9
"Masculine" and "feminine" values (men)	c	14.7
Childlessness (women)	d	14.4
Durable consumer goods	d	14.3
Having children	d	14.2
Feeling self-confident	c	13.4
Meaningful work	c	13.4
Unemployment or meaningful employment	c	13.4
Partner's main occupation	d	13.4
Denial of needs	c	13.0
Childlessness (men)	d	12.8
Sexual preferences	c	12.8
Medical treatment	c	12.6
Relations with one's siblings	c	12.4
Height (men)	c	12.3
Seeing problems as challenge	c	11.6
Current employment status	d	11.3
Satisfaction with the local natural environment	c	11.1
Number of subordinates	d	10.9
Having sexual problems	c	10.8
Age	c	10.5
Having a very close friend	c	9.8
Satisfaction with parents	d	9.6
Partner's job type	d	9.5
Feeling sexually attractive	c	9.2
Women's siblings	d	9.1
Attending school or university (level I–IV)	e	8.9

TABLE I
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Number of biological children (women)	d	8.9
Alcohol consumption (entire week)	e	8.8
Diet	d	8.7
Alcohol consumption on weekdays	e	7.5
Half sisters and brothers	e	7.4
Materialistic/spiritual	d	7.1
Length of the relationship	d	6.8
Intellectual employment (intermediate level)	d	6.7
Types of completed vocational education	e	6.7
Job type	d	6.6
Believing that other people speak well of oneself	d	6.4
Operation under general anaesthesia	e	6.2
Men's siblings	d	6.2
Resident (country/town)	e	6.2
Alcohol consumption on weekends	e	6.1
Military employment	d	6.1
Being a twin/triplet	e	5.9
Ethical sensitivity	e	5.9
Completed vocational education (level I–IV)	e	5.4
Values	e	5.1
Height (women)	d	4.3
Tobacco use	e	3.9
Relations with one's previous partner	e	3.4
Exercise	e	2.3
Intellectual employment (expert level)	e	2.3
Smoking	e	2.1
Miscarriages	e	1.2 (NS)
Gender	e	0.0 (NS)

The connection between global QOL and 200 different life factors; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f).

*"Qualitative evaluation" of the degree of association between the factor and the QOL (a–e, see text).

**Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

TABLE II
Present life factors II

Quality of Life and...	Mark*	QOL difference in % **
Feeling good during leisure	a	64.7
Relations with oneself (employed/unemployed)	a	61.9
Assessment of one's own quality of life	a	59.2
View of life	a	59.1
Feeling good at home	a	58.3
Relations with oneself	a	56.8
Fulfilment of social needs	a	52.3
Fulfilment of basic biological needs	a	52.3
Self-perceived mental health	a	51.0
Mental disorders	a	44.0
Unemployed persons' assessment of their own means	b	42.8
Relations with friends	a	42.7
Fulfilment of needs for an exciting and varied life	a	42.5
Fulfilment of need to be useful	a	42.2
The quality of one's social relations	a	42.2
Fulfilment of need for self-realization	a	42.1
Satisfaction with relations with acquaintances	b	42.0
Self-image	a	41.6
Satisfaction with one's relationship situation	a	38.0
Assessment of one's own means	b	37.7
Satisfaction with relations with friends	b	37.6
Satisfaction with one's sex life (men)	a	35.5
Number of severe health problems	a	35.3
Unemployment with/without meaning of life	b	35.2
Current diseases and conditions	c	33.9
Satisfaction with one's own means	b	33.4
Type of health problems	b	33.3
Numbers of health problems	b	32.7
Relations with one's partner	a	31.7
Mean occupation	c	31.5
Feeling good at work	b	31.2
Satisfaction with one's sex life (women)	b	30.3
Weight and acceptance of own body (men)	b	30.0
Number of values	b	29.7
Self-perceived physical health	a	29.4
Having sexual problems (men)	b	29.3
Relations with society	b	29.2

TABLE II
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Satisfaction with one's own health	b	29.0
Meaning in life	a	28.6
Single breadwinner	b	28.1
Sexual problems (men)	b	27.2
Housing	b	26.7
Relations with one's children	b	26.0
Satisfaction with society	b	25.8
"Masculine" and "feminine" values (women)	b	25.7
Loneliness	b	25.5
Contemplating suicide	b	25.0
Having a partner	b	25.0
Social group	e	24.3
Sexual problems (women)	b	24.3
Having a sex life	c	23.7
Marital status	b	23.6
Alcohol consumption on weekends	e	23.5
Family social group	d	23.2
Relations with fellow workers	b	23.0
Employed women with/without children/partner	b	22.6
Co-habitants	c	22.6
Wide-raging values	b	22.5
Alcohol consumption on weekdays	e	22.3
Durable consumer goods	c	22.3
Current employment status	b	22.1
Under- and overweight (Body mass Index) (men)	d	21.9
Under- and overweight (Body mass Index) (women)	b	21.9
Satisfaction with work	b	21.5
Type of education	e	21.2
Disease diagnoses (main categories)	c	21.0
The social work environment	c	21.0
Sick days last year	b	20.6
Partner's main occupation	c	20.2
Annual income	c	19.8
Childlessness (men)	c	18.8
Number of biological children (men)	d	18.8
Personal resources	a	18.7
Sexual preferences (men)	c	18.5
Acceptance of one's own body	b	18.4
Important, daily personal contacts (women)	b	18.3

TABLE II
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Important, daily personal contacts (men)	b	18.0
Feeling self-confident	b	17.9
Relations with nature	b	17.8
Sexual preferences (women)	c	17.1
"Masculine" and "feminine" values (men)	c	16.9
Psychotropic drugs, use of	c	16.6
The physical work environment	c	16.5
Feeling part of a larger whole	c	16.4
Satisfaction with one's situation regarding children	c	16.3
Alcohol consumption (entire week)	e	16.1
Unemployment at four educational levels	e	16.0
Medical treatment	c	15.1
Relations with parents	c	14.8
Quality of life	c	14.5
Weight (men)	d	14.4
Partner's annual income	c	14.4
Satisfaction with the local natural environment	c	14.2
Satisfaction with parents	c	13.7
Having sexual problems (women)	c	13.7
Having a very close friend (women)	c	13.6
Number of subordinates (men)	c	13.4
Seeing problems as challenge	b	13.1
Relations with one's siblings	c	11.4
Having a very close friend (men)	c	11.3
Vocational education	e	11.2
Meaningful work	b	11.0
Childlessness (women)	d	11.0
Unemployment or meaningful employment	c	10.9
Believing that other people speak well of oneself	d	10.8
Number of biological children (women)	d	10.7
Tobacco used	d	10.6
Partner's job type	d	10.5
Having children	d	10.5
Ethical sensitivity	d	10.4
Being a twin/triplet	e	10.2
Feeling sexually attractive	c	10.0
Job type	d	9.8
Children living at home	d	9.8
Under- and overweight (Body Mass Index) (women)	c	9.7

TABLE II
(Continued)

Quality of life and...	Mark*	QOL difference in % **
Employment as process or machine operator	e	9.5
Height (women)	e	9.4
Caring professions	d	8.6
Treatment	d	8.5
Diet	d	8.1
Denial of needs	d	7.6
Length of the relationship	d	7.5
Intellectual employment (expert level)	e	7.4
Attending school or university (level I–IV)	e	7.1
Difference in educational levels (self/partner)	d	7.1
Abortions	d	6.8
Medical treatment	e	6.6
Miscarriages	e	6.0
Number of subordinates (women)	e	6.0
Men's siblings	d	5.3
Materialistic/spiritual	d	5.3
Smoking	e	5.2
Types of completed vocational education	e	5.0
Height (men)	e	5.0
Relations with one's previous partner	e	4.6
Operation under general anaesthesia	e	4.5
Resident (country/town)	d	4.4
Half sisters and brothers	e	4.2
Type of parents	e	4.1
Exercise	e	4.1
Miscellaneous employment	e	4.1
Completed vocational education (level I–IV)	e	3.9
Management position	d	2.6
Gender	e	2.1

The connection between global QOL and 200 different life factors; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f). NS: Not Significant.

*Qualitative evaluation of the degree of association between the factor and the QOL (a–e, see text).

**Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

regression, and thus we have to judge qualitatively what the size of connection would be, if we had had a sufficient number of respondents.

As the large connections in our study showed a co-variation of 20% global QOL or more, the above mentioned error introduced by the construction of the global all-including QOL measure is generally neglectable. It is important to notice that the way our QOL measure was constructed this does not constitute a measuring problem; we will almost always find a high correlation when N = 5–10000 between QOL and the many factors constituting the global QOL or the factors related to them. However, we are not looking at the size of the correlation (the statistical significance), but at the size of the statistical co-variation (QOL difference in percent) showing the clinical significance (Ventegodt and Merrick, 2003e).

Study 1 and 2 are cross sectional studies examining relationships between the QOL, health and other factors in present time. The first included a representative sample of 2500 Danes aged 18–88 years in 1993 with a response rate of 61% (Ventegodt, 1995a; Ventegodt, 1998a). The second study is based on the Copenhagen Perinatal Birth Cohort (Ventegodt, 1996a). This cohort began with the examination of 9006 mothers and their 8820 surviving children (from a total of 9125 children) born at the University Hospital (Rigshospitalet) in Copenhagen, during the 1959–1961 period. 7222 persons were traced 31–33 years later to fill the questionnaire with a response rate of 64.1%.

Study 3 is a prospective cohort study investigating the connection between QOL and a thousand early life factors (Ventegodt, 1996a; Ventegodt and Merrick, 2003a–d). The cohort included 7222 persons from the Copenhagen Perinatal Birth Cohort and the results show the connection between an early life factor and the QOL of the child 31–33 years later.

Study 4 investigated the connection between QOL and major events in life. It is a retrospective cohort study including 746 persons, 55–66-year-olds in Albertslund, Denmark (Ventegodt, 2000).

In the four studies including a total of 11,000 Danes, we have about 2000 factors correlated to the global QOL. For the tables

we have chosen the factors that we believe are the most important for understanding the creation of the QOL state, and the factors normally in focus in the health sciences (included are: "victim of rape", "sexual satisfaction", not included is "working as an engineer", "level of vocational education").

The tables show the QOL difference in percent, meaning the difference in percentage between the worst and the best off according to QOL. The QOL difference was measured either by (single events), or calculated with the method of weight modified linear regression (impact of all events).

An example of the first is the following (from SEQOL):
Q14. With whom do you live?

1 living alone;
2 spouse or partner;
3 own children;
4 partners children;
5 adopted children;
6 friends;
7 biological parents;
8 others.

In Table I "co-habitans" is 21.1%, meaning that the difference between best category here according to the measuring (living with own biological children, 6.2% above the average of the population (Ventegodt, 1995a) and worst category (living alone, 14.9% below the average of the population) showed a difference of 21.1%. Another example is the following (from SEQOL):

Q127. How satisfied are you with your sex life now?

1 very satisfied;
2 satisfied;
3 neither satisfied nor dissatisfied;
4 dissatisfied;
5 very dissatisfied.

In Table I we find "satisfaction with your sex life (men) 30.9%", meaning that the difference between best category (very satisfied, 11.1% above the average) and worst category

(very unsatisfied, 19.8% below average) showed a difference of 30.9%. Here we have a continuous variable making it more meaningful and exact to analyse the co-variation using (modified) linear regression (Ventegodt et al., 2003e). Using these different ways of analysing the size of the co-variation makes it possible to compare the co-variation of the different life factors with respect to the global QOL (Tables I–IV).

The size of the co-variation gives us the clinical significans, which is impossible to judge from the statistical correlation alone (the statistical significance). We have invented a method to obtain a direct quantitative measure of the statistical co-variation, making it possible to compare all the associations directly and quantitatively (Ventegodt et al., 2003e), instead of using the Cohen's suggestion of simply interpreting effect size as "low", "medium" and "high".

RESULTS

Study 1 and 2 (Table I and II)

Here we found the strongest association between QOL and the relationships to oneself, the partner and friends. Satisfaction with personal sex life was also a substantial factor. With respect to values, number and diversity was decisive. Health problems were also strongly related to QOL, as were mental disorders. Good relations with one's children (if any), siblings, acquaintances and nature and society were also somewhat strongly correlated, as were self-evaluated economic status. To our surprise having children showed no strong relationship to QOL, and neither did relations with one's parents. Lifestyle factors such as tobacco and alcohol consumption, drug use, exercise, and diet did not seem particularly important.

Which factors showed hardly any variation with the QOL? Objective factors like annual income, age, sex, weight, and social group did not. Two exceptions were the unemployed and social-security recipients, who experienced a QOL lower by 5–10%.

TABLE III
Early life factors

Quality of life and ...	QOL difference % *
... The child's ability to sit at the one-year examination (sit badly and bent forward versus sit naturally)	21.0
... Mother's medication during pregnancy (painkillers in first month)	15.3
... Age when the child walks with support (before the 7th month versus does not walk when one year old)	14.2
... Hanging day one – no moving	13.4
... Signs of brain damage in the child (tense fontanelles versus none known)	12.9
... Malformations in the child (central nervous system)	12.3
... Disease in the child's first year (meningitis)	11.7
... Washing machine versus soap (indicates the mother's financial state)	11.3
... Mother's illness (syphilis) before pregnancy	8.9
... Accidents (other than cranium trauma, poisoning)	8.9
... Mother's congenital malformations	8.8
... Infection in the first year (lymphatic node in armpit versus none)	7.9
... Institutionalised during the first year of the (9–10 months versus not institutionalised)	7.4
... Social status (Svalastoga's system) at the child's one-year examination	6.9
... First year of life, overview	5.9
... Abnormal findings in the child at the one-year examination (locomotive apparatus, central nervous system, respiratory system)	5.6
... Does not stand at one year despite support	5.1
... Mother in bed-sitting-room or similar	4.5
... Age when child stands with support (7–8 months versus 12 months)	4.3
... Traces of neglect at one year (child's skin very dirty)	4.2
... Time when child walks without support (cannot at one year versus can walk by 12th month)	3.9
... Mother's situation: overview	3.8
... Failed contraception (condom)	3.8

TABLE III
(Continued)

Quality of life and ...	QOL difference % *
... Manner of delivery: expression (assistance during the birth)	3.8
... Does not walk despite support at one-year examination	3.8
... Child's length at birth (45–47 cm versus 50–51 cm)	3.5
... Mother with a mental illness during pregnancy (psychopharmacological medicine late in pregnancy)	3.4
... Mother's attitude towards the present pregnancy (the child wanted versus unwanted)	3.4
... Start of life: overview (3 domains)	3.3
... The nose blocked up at the one-year examination	3.3
... Valgus position, one foot (versus nothing or both)	3.2
... Child placed in residential care after birth (versus taken home with mother)	3.1
... Marital status at conception (married versus divorced)	3.0
... Mother smoking during pregnancy (more than 10 cigarettes a day)	2.7
... Breast fed versus formula from first day	2.9
... Marital status of mother at one-year examination (married versus unmarried)	2.8
... Head circumference, first day (30–32 cm versus 34–36 cm)	2.8
... Start of life, overview (best/worst in three areas)	2.7
... Age when child stands without support (not by one year versus stands before 12th month)	2.4
... Mother's abortion attempts	2.2
... Hospitalisation in child's first year (1–2 months versus never)	2.2
... Child's height at 1 year (81–85 cm versus less)	2.2
... Mother is overweight	2.1
... Gender of the child (male versus female)	2.1
... Strong physiological screaming, first day	1.8
... Child's weight at 1 year (more than 12 kg versus less)	1.6
... Illness in the child's first year (lungs, bronchi/trachea)	1.5

TABLE III
(Continued)

Quality of life and ...	QOL difference % *
... Day care in child's first year (did not take place versus took place)	0.3
... Natural reflexes at one year (versus other things)	0.3
... Adoption	NS

The connection between global QOL and early events during Pregnancy, Birth and Infancy (1000 factors investigated in total); only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt et al., 2003f).

*Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

If we use these documented relationships between the QOL and various life factors as a basis for speculation about what is important in life, it seems as if QOL derives from good relations, with the close as well as the distant world. What the person possessed in objective terms – money, status, work etc. – did not seem to be important to the QOL of the individual person. The results indicated that what is really important is not *what* you have, but *how you see and evaluate what you have.*

Study 3 (Table III)

This study showed, that illness and other biological factors were probably less influential in determining the QOL of the adult, than psychological and social factors. All in all there was a very modest connection between most of the early life factors and the global QOL of the adult person. When examining the mother's social situation during pregnancy to find various groups, where it would have been expected to have a long-term effect on the offspring, we could not find a connection. No matter which group we looked at: the young, the single, mothers with psychiatric disorders, the very poor, mothers who did not want their child, the physically ill or disabled, the

TABLE IV
Major events in life

Life Event (impact of single event)	QOL-difference % *
Conversion to a new religious belief	−21.7
Unable to walk	−21.1
Sexual assault by well-known offender	−20.8
Threatened with violence upon family	−18.6
Diagnosis: Lupus	−17.6
Psychotherapy in two periods	−16.4
Victim of rape	−15.7
Incest, without intercourse	−15.4
Invalidity pension	−15.3
Sexual assault: Pawing	−13.9
Paralysed, damaged or lack of body parts	−13.9
Catholicism	−13.0
Expulsed from a group	−12.9
Lack of care in childhood	−12.3
Attempt of rape, 1st time (women)	−12.1
Two psychiatric hospitalisations	−11.9
Registered in a credit-bureau	−11.9
Cannot run	−11.9
Venereal diseases	−11.6
Other serious physical disorders	−11.5
Unrealistic re-payment arrangement	−11.3
Peak experiences: Survival journey	11.3
Got kicked under attack	−11.2
Former an atheist, but now a believer	−11.0
Sex harassment	−10.8
Suddenly becoming abandoned by a close friend	−10.8
Fear of death	−10.8
Personal growth: fasting	10.5
Brain bleeding	−10.3
Debts to the public authorities	−10.3
Communism (political standpoint)	−10.3
Arthritis (diagnosis)	−10.3
Owing money, going to Bailiff's court	−9.8
1st. psychiatric hospitalisation	−9.5
Neurosis (diagnosis)	−9.3
Was adopted	−9.0
Peak experience: Out of your body/synchronicity/psycho kinesis	8.9

TABLE IV
(Continued)

Life Event (impact of single event)	QOL-difference % *
Use of drugs as a life event: Tranquillisers	−8.7
Cannot go up/down stairs	−8.7
Meeting with Bailiff	−8.3
3rd. medical hospitalisation	−8.3
Lack of psychological contact with parents	−8.1
Early retirement pension	−8.1
A (former) period with good friends	−8.1
Use of drugs as a life event: Sleeping pills	−7.9
Social Security benefit	−7.8
Psychoactive drugs, 1st. period	−7.7
Lack of physical contact with parents	−7.7
Cannot lift heavy things	−7.7
Removal of birthmark	−7.7
Period with strong religious doubts	−7.6
Bad blood circulation	−7.5
2nd. medical hospitalisation	−7.4
Chronic bronchitis (diagnosis)	−7.4
Partner died	−7.2
Period of alcohol abuse	−7.2
Had a relationship with a much younger partner	−7.1
Money: Lost in properties	−7.0
Hobbies: Zoology	−7.0
Sexual assault: Obscene remarks	−6.9
Abdominal disorders	−6.9
Experienced a life crisis	−6.7
The partner left	−6.6
Perfectly tuned relationship with partner	6.5
Depression (diagnosis)	−6.3
Partner fails utterly	−6.2
Period with a great sense of loneliness	−6.2
Cheated (first time)	−6.1
Experience of the world falling apart	−6.1
Job offer/job training	−6.0
Illnesses of the back	−6.0
Serious crisis between oneself and mother/father	−5.9
Been officer in the army	5.8
Sexual assault: Exposed naked	−5.8
Unemployment in two periods	−5.8
To be let down by a close friend	−5.6
Experienced someone death by suicide	−5.5

TABLE IV
Continued

Life Event (impact of single event)	QOL-difference % *
Hypertension (diagnosis)	−5.5
Sports: Running, marathon or similar	5.4
Scold ones children often	−5.0
Likes: New Age (music)	−5.0
Father/mother moved away	−5.0
3rd. surgical hospitalisation	−4.9
Suffered from a serious physical illness	−4.5
Had a relationship with a much older partner	−4.3
Pneumonia (diagnosis)	−4.2
One or more divorces	−4.1
State of perfect balance in your life	3.9
Human relations with complete openness	3.9
Partner was unfaithful more times	−3.9
An experience of sudden, deep insight	3.8
Serious crisis with child	−3.7
1st. medical hospitalisation	−3.7
Perfect part of a community	3.5
Diminished acoustic capacities	−3.3
Using pain-killers (self-bought)	−3.1
Socialist People's Party (political standpoint)	−2.8
1 or more crisis in one's partner relationship	−2.8
Paralysed, damaged or lack of body parts	−2.8
Joined a political party	2.7
Incurable cancer (including skin cancer)	−2.6
Money: can afford to do what you want	2.5
Liberal (political standpoint)	2.5
2nd. surgical hospitalisation	−2.3
Always been a believer in good	2.1
Done military service	2.0
Sports: Swimming athletics, cycling or similar	1.9
Been in complete control of your economy	1.5
Interest: for food/wine	1.3
Sports: Trekking	1.2
Devoting yourself to your work completely	1.2
Very interested in theatre	1.1
Became a father/mother	1.1
First marriage	0.7

TABLE IV Continued

Life Event (impact of single event)		QOL-difference % *
Analysis of the statistical connection between life events and QOL (impact of all events) (all $p = 0.01$) *)		
Most common emotion (on a positive-negative scale)	b	25.4
The average level of events not integrated	b	25.1
Level of integration of five-year-old life events	b	25.1
Number of essential physical health symptoms	c	−13.6
Very negative events arranged in order of time	c	12.2
Number of good events minus bad events	c	11.8
Number of life events not integrated	c	11.5
Number of very negative life events not integrated	c	10.7
The number of important, very negative events not integrated	c	9.9
Number of bad life events	c	8.8
Number of events containing good feelings	d	6.9
Number of life events	e	6.1

The connection between global QOL and 1000 different life events; only statistically ($p < 0.05$; NS: Not significant) and clinically significant factors listed. Difference in global QOL is measured according to the Integrated QOL theory (Ventegodt et al., 2003j), and is measured with the validated SEQOL questionnaire (Ventegodt al., 2003f).

*Difference in percentage between the worst and the best off (single events), or calculated with the method of weight modified linear regression (impact of all events) (Ventegodt and Merrick, 2003e).

uneducated, the mothers who had their children adopted at birth – the overall impression was that the children as adults were largely unaffected by the mothers' social situation during pregnancy. Children from the lowest social group (according to Svalastoga, 1959) were as adults only 6.9% (spread 7.4) below the average QOL score of the cohort.

We found correspondingly modest connections, when we examined pregnancy and birth, even when we looked at: the mothers who gave birth prematurely or post-maturely, the mothers who contracted a virus during pregnancy, the mothers who worked with chemicals during pregnancy, the mothers who were exposed to X-rays, those who had pregnancy

toxaemia, the mothers whose labour lasted more than 12 hours, the mothers who had a caesarean section, the mothers who had large scars in the placenta and the mothers whose children lacked oxygen.

Throughout this section one cannot help thinking that these factors must have had some influence on the child in later life, but in terms of QOL we practically found little connection. The few exceptions were maternal smoking and medication taken during pregnancy, especially the consumption of painkillers and psychopharmacological drugs. It seemed from our study that tobacco and pharmaceuticals were not well tolerated by the unborn baby, though the baby was resilient to many any other factors (that is assuming they survive to adulthood).

For the first year of life we examined all the factors, which ought to indicate a reduced QOL for the adult person. As a group, the persons who contracted meningitis were 11.7% below the average in overall QOL. The group that have the slowest motor development were 14.2% in overall QOL below the group that developed most quickly. Long periods of institutionalisation during the first year of life were associated with a 3–7% lower QOL compared to those who lived with their mother at home. Very dirty skin, used to indicate neglect, was associated with a reduction of 4.2% in the QOL of the adult.

It is not accurate to say that a bad start in life is not reflected in later life. But considering the disadvantage in social situation, which happened to some of these children in the research, the effect on their QOL in later life was extremely modest. When we combined those adults, where the mothers had the worst social situation, pregnancy and birth complications and gather this group into those who had the worst first year of life you might expect to obtain a cumulative effect, which might point to the adults with the lowest QOL 31–33 years later. This was not the case. Those who were low in all three areas had only 5% below the average QOL.

Therefore, despite our attempts to create groupings that might show greater connections, we found only a 10% connection between the early life factors and the QOL of the adult. From earlier research (Veenhoven, 2004) we know that there

are many people, who have had a bad life. Now from our long-term study we know that low QOL cannot be connected to the early factors we have examined in this research. Of course this does not mean that there are not other early factors, which could affect the QOL of the adult.

We conclude from this study that despite examining 1000 diverse early life factors we could not find those, which determine the QOL of the adult. The results suggested that the QOL of the adult was probably not determined by early childhood events – contrary to the beliefs held by many psychologists, therapists and psychoanalysts. Other factors must therefore play a greater role in determining the QOL.

Study 4 (Table IV)

From earlier surveys and analyses we were accustomed to extensive associations between QOL and subjects like sexual satisfaction or self-estimation of physical health, but in this survey major associations were rare. Most isolated associations were intermediate or minor as seen in life events related to economy, employment, friends or relationships, experiments with personal development, military events, peak experiences or political affiliations. As expected, life events related to health, such as restraints of movement or psychological illness showed a major association with the QOL.

The most remarkable associations appeared from the last part of the questionnaire, which looked at the extended and more superior association between QOL and life events. The connection between QOL and emotional contents of a life event such as anger, sorrow or hate was analysed, and also the connection between QOL and the extent to which the events have been emotionally processed (integration level). Apparently, good and bad life events do not sum up the QOL. In order to arrive at such a conclusion, it was necessary that the questionnaire touch as many life events as possible. In comparison it seemed that the actual QOL was determined by how the events have been processed and thus integrated. Conclusively, is seemed likely that it is our attitude to what happens to us that

determine our QOL, more than it is our luck or misfortune (events both good and bad) throughout life. From this last study we conclude that:

- QOL cannot be explained solely by the bad life events that contain negative feelings.
- People who are good at processing the events in their life statistically possess a good QOL.
- Processing a bad event removes the negative importance to the QOL.
- Time only heals the wounds of life events, if negative experiences are processed.
- Many, small life events means more to the QOL than a few and bigger events.
- QOL is determined not by life events, but the way we relate to life.

DISCUSSION

What is unique about the Danish Quality of Life Survey is the access to the Danish Perinatal Birth Cohort 1959–1961, our effort to map all indicators related to global Quality of Life (QOL), and the comprehensive SEQOL questionnaire (30 sdifferent versions during 7 years of development and pilot studies), using optimised rating scales based on QOL-theory and strict new methodology (Ventegodt et al., 2003c–l). As such birth cohorts are extremely rare, because they are expensive and time consuming to conduct, and since long-term follow-up of the global QOL is a recent idea, we have to our knowledge not seen similar studies carried out in the world. We therefore believe our data and findings to be of a unique nature. For a more general approuach to QOL we refer to the database on happiness by Ruut Veenhoven (Veenhoven, 2004). Other studies (Bor et al., 2003; Kitamura et al., 2002; Wilkins et al., 2004) have similar designs as the present study, but are focusing on health-related QOL, behavior, self confidence or life-satisfaction, and not global QOL.

The data presented in this paper suggested that a wide range of indicators were related to the global QOL. As shown health seems to have considerable associations with the global QOL, and therefore the promotion of a better QOL seems important, not only for the motive in itself, but also for the improvement of people's health. In this paper we have found numerous QOL dimensions strongly associated with both mental and physical health. The causal direction is in many cases unknown and several of the indicators will not be likely or advantageous to make an effort to change.

It is not the actual events in your past that determine your QOL, but rather the way that the events were integrated in the mind. This gives us a foundation to describe means to promote the global QOL and hereby the overall health, like improving your relationships, developing a more positive responsible philosophy of life and integrating your past in order to heal existentially.

These findings are in agreement with the life mission theory that we developed (Ventegodt, 2003; Ventegodt and Merrick, 2003f; Ventegodt et al., 2003t–w, Ventegodt et al., Submitted) to explain that happiness and QOL comes from living your purpose of life in the present time and succeed to take responsibility for your life here and now by expressing the talents in your life. If health, QOL and ability comes from an optimal tuning of philosophy of life and attitudes here and now, the question is how this positive and healthy state can be brought about.

There are many examples of a person in a sub-optimal state of being, who develop into what is known as "the natural condition" of this person, a condition where the person knows himself and uses all his efforts to achieve what is most important for him. The idea of personal development seems to be in accordance with the findings that QOL is created in the present, almost independently of the past experiences, even with severe early life traumas.

The holistic process theory of healing (Ventegodt et al., 2003x–aa) and the related QOL theories we developed (Ventegodt et al., 2003j; Ventegodt et al., 2003k–l) states that

the return to the natural state of being with optimal QOL is possible, whenever the person gets the resources needed for the existential healing. Our position here is not that a person is not damaged by the early traumas, but that he is able to heal his existence given the necessary support. The resources needed for this are in the dimensions: awareness, respect, care, acknowledgment and acceptance with support and processing in the dimensions: feeling, understanding and letting go of negative attitudes and beliefs.

In letting go of negative attitudes and beliefs the person returns to a more responsible existential position and an improved QOL and this is exactly what we see in this study, where we found that philosophy of life and self-perception was of major importance to QOL and health. The philosophical change of the person healing is often a change towards preferring difficult problems and challenges, instead of avoiding difficulties in life (Merrick and Ventegodt, 2003; Ventegodt et al., 2003m–s). The person who becomes happier, and more resourceful is often also becoming more healthy, more talented and able of functioning (Ventegodt et al., 2003a–b; Ventegodt et al., 2004b). Happiness being a thing to obtain individually and independently by developing a more positive philosophy of life seems to be in accordance with the findings of the present study. Life style and behavioural factors in this study plays a much more modest role in creating the QOL.

Taken all together the data suggested that global QOL in a paradox way was created through our consciousness, attitudes and way of connecting to life, our self and others. Global QOL is not in a simple way a product of a person's efforts through time, of money, of education or of social status. Our four populations studied included 11 000 Danes and 2000 different factors associated to QOL, which seemed to point to the Asian doctrine of "no mind", or to "the power of now" in more modern language (Tolle, 1999). Global QOL is not a head-and-mind-project, but a life-project closer to feelings and emotions. To develop global QOL is not a rational project, but rather a project of love. It is even a spiritual project of coherence with the world and transcendence of the ego. Global QOL is really about being a perfect

part of the present reality, thus supporting the ideas of thinkers like Jung (1964, 1968), Antonovsky (1985, 1987), Maslow (1962), Frankl (1985), and more recently Bohm (1980), Goleman, and the Dalai Lama (1997, 2003).

Deeply moved and challenged since the beginning of our QOL research began by the paradox and often unsuspected findings, we have been devoted through our consciousness to analysing the strange ways the human being create global QOL, relations, health and ability (Ventegodt et al., 2003s; Ventegodt, 2003). The quantitative data taken all together seem to give substantial support to the idea that global QOL and health, even our physical health, is primary created through our consciousness, choice of perception and subsequently our behavior and experience.

The way we deal with feelings and emotions seem to play a central role. It seems that we can upgrade our consciousness by integrating our emotionally negative life-events and thus recover our physical, mental and spiritual character. If we find our purpose of life and natural state of being we will be able to heal existentially and improve our global QOL (Ventegodt et al., 2003s; Ventegodt, 2003). What was most surprising from our studies of global QOL was that this could be done independently of the objective status of both past and present. This is a very important difference between health-related QOL and global QOL. Improving the global QOL is in the end an existential question of stepping into character, leaning into life fully, and acknowledging spiritual dimensions like will, truth, and love for life.

In all our studies of global QOL we have found this very strong statistical connection between QOL, health and ability, a fact that often is not focused on in much of our health research. We believe that improving global QOL in general will lead to improved health and ability. The results from the Danish Quality of Life Survey taken all together are thus a scientific basis for a consciousness-based medicine.

The most important limitation of the study is the fact that the integrative QOL theory state that the existential dimensions of QOL are the most central and important. These dimensions

associated with concepts like meaning and coherence are hidden deep in human existence and are often beyond words, making quantitative measuring of the most important QOL dimensions impossible. Statistical analysis has giving us a lot of troubles in this study, because global QOL in its most abstract and all-including sense is connected – also in theory – to almost any life factor, past or present. Finally, the problem of interpreting such a vast amount of data into a final conclusion is closely connected to the hermeneutic problem, with a danger of just confirming previous belief, instead of learning something new from falsification, because the high level analysis is connected with getting so far away from the concrete data, that freedom of interpretation grows very large.

CONCLUSION

The global QOL is closely connected to health. Where health is very difficult to change, there are a number of factors related to QOL that actually seems changeable. Some of these factors can be changed by the person, like attitudes and general philosophy of life, the liking of others, the inner state of harmony and balance created from integrating one personal past and learning from everything that has happened in life, including the emotionally negative events. A very interesting finding from our study was that the yearly income, social group, educational level, and other objective factors showed only a very limited association with global QOL and health. This is interesting as most people in our time strive for material wealth and social status, which in fact does not give a better QOL and health. Many people blame their past for their poor QOL, but our findings did not support this idea. Often physicians are very concerned with children not developing according to schedule, but our research seemed to show that early factors seldom play an important role in the QOL even 33 years later.

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