

ENJOYMENT OF LIFE LENGTHENS LIFE Findings and consequences¹

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1 The issue

It is widely acknowledged that mental factors may influence physical functioning and that psychological well-being works positively on physical health. This idea does not only live among adherents of holistic medicine, it also has a firm root in academic psychology. There is good evidence for the negative effects of mental distress on physical health, e.g. on depression, anxiety and hostility, and there are also indications of the beneficial effects of positive mental states, such as positive affect (Zautra, 2003).

In this context, it is commonly assumed that happiness is conducive to physical health. It is believed that happiness helps to heal the sick and that it protects people in good healthy against getting ill. In this view, health-care should not only be concerned with illness, it should also be concerned with wider quality-of-life. This view is reflected in broad definitions of health, such as the World Health Organization's definition of health as a state of general physical, mental and social well-being and not only the absence of illness and defect (Seedhouse 1996, p. 41). In this line it is also asserted that current health education may be counterproductive because it puts a damper on enjoyable things such as smoking and drinking (Warburton, 1994, 1996).

Yet, there are also different notes. For instance, VanDam (1989) argues that positive attitudes cannot stop serious illness and that the idea of 'fighting cancer' with happiness is a mere illusion that blames the victim. Several studies have indeed failed to find longer survival times among happy cancer

¹ This study was done for ZonMw, the Netherlands' organization for health research and development, and reported in Dutch in Veenhoven, 2006.

patients and some studies even report shorter survival times (e.g. Derogatis, 1979). There is also doubt about the protective effect of happiness and even reports of greater mortality among cheerful people as a result of their more risky lifestyles (Freedman *et al*, 1993). In this view, healthcare is better limited to physical health in the strict sense with too buoyant living being discouraged.

In this paper I address this issue in two ways: First I take stock of the empirical research on effects of happiness on physical health. I focus on longevity and assess whether happy people live longer. This appears to be the case: though happiness does not cure serious illness, it does appear to protect against falling ill in some way. Having established that happiness improves health, I next explore the consequences of this finding for public health policy.

2 Effects of happiness on physical health: A review of the research literature

2.1 Correlational studies

There is a wealth of cross-sectional studies on happiness and physical health, much of which is summarized in the World Database of Happiness – correlational findings on happiness and Physical Health (WDH, 2006). This research shows consistent positive relationships.

Correlations vary between +.10 and +.40 and appear to be largely independent of age, gender, socio-economic status and personality. The correlations tend to be higher in patient populations than among the general public. The correlations of happiness with self-rated health are somewhat stronger than the correlations between happiness and health ratings based on medical examinations, but that does not necessarily mean that the relation with ‘real health’ is weaker, since objective indicators do not capture several relevant aspects of health (Benyamini *et al*, 1999). A recent cross national survey found highly similar correlations in 46 nations, a one point difference on the 5-step self-rating of health corresponding to a 0,6 point difference in happiness (Helliwel, 2002, p. 339).

These studies clearly show that there is a statistical relationship, but they do not inform us about cause and effect. The correlations can be caused by the effect of health on happiness rather than by effects of happiness on health. To disentangle cause and effect we need follow-up studies.

2.2 Follow-up studies on effect of health on happiness

Only four studies have been done to assess the effect of earlier physical health on later happiness. One of these estimated physical health in the first year of life, using the medical records of a maternity clinic, and found no statistical relation with happiness at age 33 (Ventegodt 1997, p. 300). Likewise, a 12-year follow-up of adults did not find a correlation between doctor's visits at baseline and later happiness (Chiriboga 1982:, p. 23). Another 12-year follow-up of middle-aged Americans did find some relation between baseline self-rated health and later happiness, but no effect of *change* in physical health over this period (Palmore 1977, p. 315). Still another 12-year follow-up among married couples in the USA found a small correlation between baseline self-rated health and later happiness ($r = +.13$ $p < .001$). Interestingly, this study also observed a stronger effect of baseline happiness on later health ($r = +.37$ $p < .001$, Hawkins & Booth 2005, p. 456). These results suggest that the observed correlation between happiness and health will be largely due to a causal effect of happiness and, as we will see, that is the case.

2.3 Follow-up studies on effect of happiness on health, in particular longevity

Physical health can be measured objectively using medical assessments or subjectively using self-reports. For the purpose of this study, I opted for the most objective measure possible, that is, longevity. The reason was to avoid contamination. If we measure health using self-reports, there would be a fair chance that happiness colours self-appraisals of health and this could even be the case with medical assessments that are at least partly based on reports of symptoms.

There is a lot of research on predictors of longevity. Studies at the individual level have documented effects of various genetic factors, physical functioning, personality traits, life style variables, social support and socio-economic status. For a recent review, see Lyyra (2006). Only some of these studies have involved indicators of happiness, and because happiness is typically a side issue, it is difficult to trace the findings in the bibliography. Most references were found in the Bibliography of the World Database of Happiness (WDH, 2006) and in a recent monograph on the consequences of subjective well-being by Lyubomirsky *et al.* (2005). I used three criteria for selecting the studies: first that the investigation involved follow-up over time, second, that longevity was assessed and, third, that this was related to earlier happiness. In the context of the latter criterion, I inspected whether the indicators of happiness

Table 1. Happiness and longevity: 11 follow-up studies among medical patients.

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
Breast cancer patients	35	1 year	Affect balance scale	None	Negative Dead: M = 2,01 Alive: M = 1,27 Difference: p<05	Derogatis, 1979
Inhabitants old age home for veterans	668	2 years 2001-2003	Single question on life satisfaction	Age, baseline health and health behaviour	Positive OR5 = 1,4 unhappy OR5 = 8,9 very unh.	Kao et al., 2005
Aged inhabitants nursing home: chronically ill	193	2 years 1977-78	Life Satisfaction Index (LSI)		No difference	Reynolds & Neilson, 1981
Aged residents nursing home Massachusetts, USA	30	2.5 years	Six questions about satisfaction with life	Age, baseline health	Negative: Dead: M = 27,2 Alive: M = 21,9 p<.05	Janoﬀ-Bulman & Marshall, 1982
21-80 aged heart patients Massachusetts, USA	3375	3 years	Single question on life satisfaction	Age, baseline functional health and treatment	No effect RR = 1,052 ns	Konstam et al., 1996
Early stage melanoma patients Sydney, Australia	426	1-6 years 1991-1997	Single question: ladder of life 'now' Single question on mood	Baseline disease variables, coping style and concerns	Positive RR = 0,92 p<.002 Negative HR = 1,02 CI95: 1.00-1,03	Brown et al., 2000

Table 1. Happiness and longevity: 11 follow-up studies among medical patients. (continuation).

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
65-96 aged residents of nursing homes Montreal, Canada	129	4 years	Satisfaction with Life Scale (SWLS)	Age, gender and baseline health (objective and subjective)	No effect HR = 0,79 r = -.08 ns	O'Connor & Vallerand, 1998
End-stage renal disease patients Calgary, Canada	97	4 years	Affect Balance Scale Single question on Life happiness	Age, co-morbidity, number of leisure activities	No effect r = +.00 ns No effect partial r = -.17 ns	Devinds et al., 1990
Elderly (mean 79) Living in institution Newfoundland, Canada	156	5 years	Happiness (MUNSH) Questions on recent happiness	Age, activity, religiosity, perceived health	Negative 1,2% explained variance Negative 2% explained variance	Stones, Dorman & Kozma, 1989
Breast cancer patients: with relapse	36	7 years	Positive affect (Joy)	Age, baseline health, prognosis, time before relapse	Positive B = +.20	Levy et al., 1988
Spinal cord injured > 2 after accident	345	11 years 1985-1996	General satisfaction factor	Biographic variables	Positive OR2 = 1,99	Krause et al., 1997

used fit the above definition of happiness. Some studies claim to assess happiness but measure something else. This was for instance the case with the above-mentioned study that observed greater mortality among cheerful people, the word ‘cheerfulness’ being used for a happy-go-lucky attitude (Friedman *et al.*, 1993).

Altogether, I found 30 studies, a rather mixed bag. The studies were all done with different populations and used different methodologies. A main methodological difference was found in the control variables. Some of the studies did not assess baseline physical health and could therefore not rule out the possibility that greater longevity of the initially most happy was due to their better initial physical health. Most studies did control baseline physical health, but assessed this in different ways, some using self-reports and others medical screening. Another noteworthy difference was in the statistics used to quantify the effect of happiness on longevity. Some studies expressed the difference in a regression coefficient and others in Odds Ratio’s of different kinds. On the basis of the published research reports I could not transform the findings to obtain a common effect size, and a full-blown meta-analysis is therefore not possible.

2.3.1 Happiness and longevity in sick people

Eleven follow-up studies have been done with ailing people, partly frail elderly and partly patients suffering serious diseases. Given the poor health of these people, the follow-up period was typically no longer than a few years. These studies are presented in [table 1](#), by the order of the follow-up length; the shortest follow-up period was one year, the longest 11 years.

Researchers in these 11 studies observed 14 effects, of which only four appear to be positive and five negative, while in another five cases no significant effect was found. The positive effects were observed in studies with relatively healthy samples, that is, veterans in an old age home (not a nursing home), heart patients of all ages and people with spinal cord injuries. An exception to this pattern was the positive effect found in cancer patients who had a relapse. Positive effects were also found in the two long-term studies cited at the bottom of [table 1](#). The negative effects were observed among incurably ill patients and the very old frail elderly.

Together these results do not suggest that happiness ‘heals’, at least not that happiness can restore health in the case of serious illness. In other words: happiness does not appear to postpone death.

2.3.2 Happiness and longevity in healthy populations

Nineteen follow-up studies of healthy populations are summarized in [table 2](#), mainly of non-institutionalized elderly persons, and a few studies of

younger age categories. A special case is the study carried out among nuns, summarized at the bottom of [table 2](#). The studies are again presented in order of length of the follow-up period, which vary from one year to more than 60 years. Five of the studies cover 20 years or more.

Researchers in these 19 follow-up studies assessed 24 effects, of which 16 were positive, while in eight cases an observed (positive) effect did not reach statistical significance. In the case of the study carried out in Japan by Kawamoto & Doi (2002), the non-significance is possibly due to control of activity and social contacts, which is likely to have removed variance in happiness. None of the studies in [table 2](#) resulted in a negative effect.

The observed positive effects of happiness on longevity are quite sizable and amount to 7,5 and 10 years. The strongest effect was observed in the longest follow-up, the study of American nuns, which covered their entire adult lifetime. In this study, happiness in young adulthood was measured using autobiographies written by the nuns on entering the convent. Unfortunately, baseline health could not be controlled in that study. In the study by Levy et al. among over 50 aged in Ohio USA, the researchers did control baseline health and still found that the happy lived 7,5 years longer.

It is not possible to generalize these finding to a simple statement such as: happy people live so many years longer. This is partly due to technical problems in the use of non-comparable statistics and different cut-off points between more and less happy people. Another problem is that the size of the effect may differ across subgroups of a population, such as among age categories. Still, it clear that the effect of happiness on longevity is large. It involves several years and as such is comparable to the effect of smoking or not.

Since we have seen that happiness does not cure serious illness, this outcome means probably that happiness ‘protects’ one against falling ill. That interpretation fits well with the fact that the effects manifest most strongly in the long-term studies.

3 Implications for preventive health care

An exploration

The finding that happiness improves health opens new ways for health promotion, preventive public health care in particular. It implies that we can make people healthier by making them happier. This not only broadens the practical options for interventions, but also widens the ideological basis of health promotion, the goal of ‘Health for all’ coinciding with the utilitarian

Table 2. Happiness and longevity: 19 follow-up studies among non-patients.

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
>18 aged Montana, Maryland, USA	164	6-12 months 1971-74	Questions about happiness	Age, income, gender, employment and marital status	No effect	Goldberg et al. (1979)
>65 aged Mexicans Texas, USA	2282	2 years 1993-94	Question about positive affect	Age, income, education, baseline chronic diseases, smoking, drinking, BMI	Positive OR4 = 2,4	Ostir et al. (2000)
>72 aged, poor neighborhoods, Connecticut, USA.	400	2 years 1972-74	Rating by interviewer	Baseline health (objective and subjective)	Positive OR2 = 1,8 healthy OR2 = 2,4 ill	Zuckerman et al. (1984)
>65 aged Not institutionalized Nonamura, Japan	2274	3 years 1998-2001	Single questions about happiness and mood	Age, gender, baseline health (objective and subjective), marital status, economic status, social contacts and activity pattern	No effect After control for age, gender, baseline health and activity	Kawamoto & Doi (2002)
>70 aged (mean 85) Berlin, Germany	513	3-6 years 1990/3-1996	Positive affect (PANAS)	Age, SES, health (objective and subjective)	Positive OR = 1.3	Maier, H. & Smith, J. (1999)
> 75 aged living in community Tierp, Sweden	161	4 years 1986-1990	Self-report on single question	Baseline health and independence (nurse rating)	Positive among 75-84 aged OR = 3,0 (CI95 1,3-7,1) No effect among > 85 aged	Parker et al. (1992)

Table 2. Happiness and longevity: 19 follow-up studies among non-patients (continuation).

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
>70 aged North Carolina USA,	147	4 years 1955-1959	Question about happiness Rating by interviewer		Positive $r = +.10$ No effect $r = +.01$	Palmore (1969)
>75 aged Helsinki, Finland	491	10 years 1985-1995	<i>Question on life satisfaction</i>	Age, gender, baseline health	Positive OR2 = 1,2	Pitkala et al. (2004)
> 80 aged twins Sweden	702	10 years 1991-2001	Zest subscale LSI-Z <i>Mood subscale LSI-Z</i>	Baseline health (physical functioning, number of serious illnesses), age, education, living alone, frequency of social contacts	Positive OR4 = 1,9 (CI95 1,3-2,8) Positive OR4 = 1,8 (CI95 1,2-2,7)	Lyyra (2006)
>65 aged Manitoba, Canada	3128	6 years 1971-1977	<i>Life Satisfaction Index (LSI)</i>	Age, gender, baseline health (objective), area of residence	No effect	Mossey & Shapiro, 1989
> 75 aged, recently widowed, England	503	6 years 1979-1985	<i>Rating door interviewer</i>	Age, gender, use of medicines	Positive OR3 = 3,4	Bowling & Charlton (1987)
20-90 aged Alameda county, California, USA	6928	9 years 1965-74	Questions about mood and life satisfaction	Age, gender, health (objective and subjective), health behaviour	No effect	Kaplan & Camacho (1983)

Table 2. Happiness and longevity: 19 follow-up studies among non-patients (continuation).

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
> 15 aged, general population, Germany	26 401	1 to 19 years (average 8.5) 1984-2002	Question on life satisfaction	Age, gender, marital status, number of children, foreign born, education, employment, house ownership, income, average income in area and baseline health (%disabled and invalid in household)	Positive 3,1% less chance of dying with one point on 1-10 life-satisfaction ($p < .01$) ¹	Frijters <i>et al.</i> (2005)
16-64 aged twins Finland	22,461	20 years 1975-1995	Satisfaction index	Marital status, social class, smoking, drinking, physical activity	Positive OR3 = 2,1 No effect among women	Koivumaa <i>et al.</i> (2000)
45-65 aged Heidelberg, Germany	3055	21 years 1973-1994	Pleasure and Well-being Inventory (PWI)	None	Positive OR4 = 19,7	Blakeslee & Grossarth-Maticek (2000)
>50 aged Ohio, USA	660	23 years 1975-1998	Positive attitude to aging (5 items PGCMS)	Age, gender, race, SES, baseline health (functional and subjective), loneliness	Positive HRb = 0,87 $p < .001$ Beta = +.25 $p < .001$ Happy lived 7,5 years longer	Levy <i>et al.</i> (2002)
			Positive evaluation of life in retirement (3 items)	Attitude to aging (above)	Positive partial $r = +.06$ $p < .05$	

Table 2. Happiness and longevity: 19 follow-up studies among non-patients (continuation).

Subjects	N	Follow-up	Measure of happiness	Control variables	Observed effect	Source
>60 aged North Carolina USA	270	25 years 1955-1981	6 item index	Baseline health	Positive $r = +.18$ No effect after control for baseline health	Palmore (1982)
>65 aged Nederland	2645	28 years 1955-1983	Questions on evaluation of life	Baseline health (objective and subjective), health behaviour, socio-demographic	Positive $\beta = +.05$	Deeg & Van Zonneveld (1989)
Nuns, USA	678	>60 years \pm 1925-2000	Content analysis of autobiographies written around age 22. Count of positive words	None	Positive OR4 = 4,3 Happiest quartile lived 10 years longer	Danner <i>et al.</i> (2001)

OR2: Odds Ratio: excess mortality of least happy (lowest half) compared to most happy subjects (highest half)

OR3: Odds Ratio: excess mortality of least happy (lowest triciel) compared to most happy subjects (highest triciel)

OR4: Odds Ratio: excess mortality of least happy (lowest quartile) compared to most happy subjects (highest quartile)

OR5: Odds Ratio: excess mortality of least happy (lowest quintiles) compared to most happy subjects (highest quintile)

HR: Hazard Ratio. Excess mortality of least happy (1 SD below mean) compared to most happy (1 SD above mean)

RR: Relative Risk: Relative risk of dying of the most happy as a function of an increase of 1 SD

aim of ‘Greater happiness for a greater number’. What innovations could this approach lead to? To answer this question I will first summarize the commonly used ways to promote public health. Next I consider to what extent these policies also add to happiness; in other words, I examine the extent to which there is a synergy there is between current health promotion and the requirements for greater happiness. Using this as a basis, I then identify some means that can be used to further happiness and that are not yet part of public health policy.

3.1 Spearheads of preventive health care

Preventive health care operates at different levels, at the micro-level of individual citizens, at the meso-level of social institutions and at the macro-level of nations.

At the *level of individuals*, illness is prevented by means of inoculation programs and by providing periodical health checks for categories such as newborns and schoolchildren. Next, there are attempts to raise awareness of health treats via health education, such as: we should have more physical exercise, stop smoking, drink moderately, eat healthy and have safe sex.

At the *level of the institutions*, the health policy is aimed at reducing disease-producing conditions in the work and living environment. The emphasis is on regulations, for instance, safety rules in working places, hygiene in restaurants and sewage systems in cities. The observance of such rules is enforced by control, i.e. fines for non-compliance or the closing down of facilities. Adherence is also encouraged by providing information

At the *level of nations*, public health is also protected in several ways, such as by keeping people with infectious diseases from entering the country, preventing pollution of noxious chemicals, and mandatory safety controls of food and consumer commodities. Health protection is also an issue in wider policies. For instance, one of the objectives of the social security schemes is to prevent health damage resulting from (child) poverty.

It is hard to say how effective each of these policies is, but together they seem to contribute substantially to public health. Life expectancy doubled in the last century and is still rising, and this gain is at least partly due to public health policies (VanderMaas 1989).

3.2 Fit with pursuit of greater happiness for a greater number

These improvements in physical health are likely to contribute to happiness, though, as we have seen above, the effects of health on happiness are

typically small. Does preventive health care otherwise add to happiness? Let us consider the possible effects at each of the levels discussed here.

3.2.1 Healthy lifestyle and happiness

It is not likely that inoculation programs and health screenings will have an independent effect on happiness. However it is possible that life-style education has. It could be that a healthy life-style is more enjoyable, irrespective of its add-on physical health, e.g. that taking regular exercise makes life more satisfying anyway. However it is also possible that healthy living is not particularly enjoyable and that health educators typically try to make us do things that we do not like. What do the available data tell us?

Physical exercise: Sportive people tend to be somewhat happier than non-sportive people, and the difference appears to be independent of age, marital status and physical health (Schulz, 1985). There are indications of a causal effect, in particular the effects of jogging on mood (Biddle, 2000). In this case there is synergy between the promotion of health and happiness

Smoking: Moderate smokers appear to be no less happy than non-smokers, but heavy smokers are. There are indications of a causal effect of happiness on smoking, a follow-up among American adolescents showing that earlier unhappiness predicts later smoking (Bachman, 1978), but in a recent follow-up in Russia, happiness appeared not to predict starting or stopping smoking (Graham 2004, p. 18). The available data do not tell us whether smoking cuts back on happiness irrespective of health. So, for the time being, we cannot rule out the possibility that smoking affects health negatively but happiness positively, hence we are sure that a synergy exists for this point.

Drinking: Moderate drinkers appear to be happier than teetotallers, the optimum being one or two units of alcohol a day (Ventegodt, 1995, pp. 180-4). As in the case of smoking, heavy drinkers are less happy (i. e., people who drink five or more units of alcohol *per* day). The only indication of causality is found in a five-year follow-up in Russia, in which an increase in drinking appeared to be associated with a decline of happiness. Unfortunately, the amounts of alcohol involved are not reported (Graham, 2004). As in the foregoing case, we cannot rule out that heavy drinking may be worse for your health than for your happiness. Only in the case of problem drinking is there a clear synergy.

Eating: There is a lot of research into the effects of nutrition on physical health, but hardly any research of the effects of diet on happiness. Analysis of a health-survey in the Netherlands showed no relationship between happiness

and the intake of unhealthy food-stuffs (sugar, fats), nor of healthy food (fruit), while consumption of meat and dairy-products was slightly positively correlated with happiness (Aakster, 1972). In a study carried out in Denmark, the researcher observed that people who often eat fast food tend to be somewhat less happy (Ventegodt, 1995). In both cases the correlations could be spurious or be due to a causal effect of happiness on food preference rather than the opposite. There is not much research either on the effects of how much one eats on happiness. The available data suggest that being slightly overweight does not depress happiness, people with Body Mass Index between 25-30 being happiest (Ventegodt, 1995, pp. 232-4). Yet, again, we lack data on cause and effect. All in all, no clear synergy has been found as yet.

3.2.2 *Healthy living environment and happiness*

At the institutional level, the preventive health care deals primarily with physical aspects of the living environment, such as proper sewage, waste treatment, provision of clean air and standards that must be met for electrical appliances or safe stairways. Does this also add to happiness? There is a correlation between quality of housing and happiness, independent of marital state and social class (WDH, Correlational findings on Happiness and Living environment). Causality is probable, but not proven as yet. The same holds for working conditions: though we know a lot about the effects of working conditions on health, we are still largely in the dark about the effects of working conditions on happiness.

3.2.3 *Sane society and happiness*

At the societal level, an important spearhead of preventive health care is the control of infectious diseases in the country. This will certainly add to public health, but is unlikely to involve an independent effect on happiness. Another aim is to reduce accidents in road traffic and workplaces. In this case, synergy is more likely, since comparative research has shown a strong negative correlation between mortality due to accidents and average happiness (Veenhoven, 1996, p. 34). Causality is likely, but not proven as yet; the correlation can also be due to a greater degree of accident proneness in unhappy countries.

As noted above, considerations of health also play a role in wider social policies such as social security arrangements. Contrary to common expectation, there appears to be no relationship between spending on social security and health outcomes in nations, nor a relationship with happiness (Veenhoven, 2000a). So in this case there is again no synergy.

All in all, it is clear that not all health promotions are likely to further happiness as well. As yet, this seems to be only the case of the policies that aim at promoting exercise and preventing problem drinking and accidents. This applies to policies that aim at *physical* health. Synergy may be greater for preventive *mental* health care.

3.3 Furthering health through happiness

Because happiness adds to physical health, health can also be furthered by policies that make people happier in the first place. What policies can we think of? Below, there are some proposals for each of the three levels discussed above.

3.3.1 *Helping individuals to live happier*

Happiness can be furthered at the individual level by 1) information 2) training and 3) guidance. This approach is particularly useful in modern nations, where the environmental conditions are typically so good that most of the variance in happiness is due to individual differences.

Evidence-based happiness advice

Happiness depends to some extent on the choices we make in life, in particular in modern ‘multiple-choice societies’. Life-choices are for the most part based on expected happiness, for instance we typically choose a profession we think we will like. Economists call this ‘expected utility’, or ‘decision utility’, and acknowledge that this may differ from later ‘experienced utility’, because decisions are mostly made on the basis of incomplete information. An example of ill-informed choice is the decision to accept a higher paying job that requires more commuting. People typically accept such jobs in the expectation that the extra money will compensate for the travel time, but follow-up research has shown that they are mostly wrong, and that happiness tends to go down in such cases (Frey & Stutzer, 2004).

Research of this kind can help people to make more informed choices. Though there is no guarantee that things will pan out in the same way for you, it is still useful to know how it has worked out for other people in the recent past. Such research is particularly useful if it concerns similar people.

This policy does not involve paternalism; it does not push people into a particular way of life, but it provides them with information for making a well-informed autonomous decision. Paternalism would only be involved if research is manipulated or its results communicated selectively. For instance if the observed negative effect of parenthood on happiness is disguised (World Database of happiness – Correlational findings on happiness and having children, WDH, 2006).

This approach to the furthering of happiness is similar to current evidence based health-education. As in the case of happiness, we are often not sure about the consequences of life-style choices on our health. How much drinking is too much? Is eating raw vegetables really good for your health? We cannot answer such question on the basis of our own experience, and the common

wisdom is often wrong. Hence, we increasingly look to the results of scientific studies, the results of which are disseminated systematically.

As yet, the information basis for this way of furthering happiness is still small. Although there is a considerable body of research on happiness, this research is typically cross-sectional and does not inform us about cause and effect. What we need is panel data that allow us to follow the effects of life-choices over time. Still another problem is that the current happiness research deals mainly with things over which we have little control, such as personality and social background. What we need is research on things we can choose, for example, working part-time or fulltime, or raising a family or not.

Once such information becomes available, it will quickly be disseminated to the public, through the lifestyle press and the self-help literature. It can also be included in the organized health-education, broadened to become education for 'living well'. The problem is not in the dissemination of knowledge, but it's production.

Training techniques for the art-of-living

Happiness depends heavily on the various skills of living, such as realism, determination, social competence and some resilience. Consequently improving such skills can further the individual's happiness.

As yet, such attempts focus typically on repairing skill-deficits, for instance psychotherapy in case of unrealistic beliefs, and empowerment training for sub-assertive individuals. Many of the interventions are provided in the context of mental health care and often paid for by health insurers. This supply caters for the unhappiest part of the population. Recently, there has also been a rise in techniques that aim to strengthen the life-skills of people without problems, in particular the 'Positive Psychology' movement (Seligman & Csikszentmihalyi, 2000). There is less institutional support for such 'positive training', but the potential audience is much greater.

In this context it would be worthwhile to invest in the development of training that focuses on the art of living. 'Art-of-living' is the knack of leading a satisfying life, and in particular, the ability to develop a rewarding life-style (Veenhoven, 2003). This involves various aptitudes, some of which seems to be susceptible to improvement through the use of training techniques. Four of these aptitudes are: 1) the ability to enjoy, 2) the ability to choose, 3) the ability to keep developing and 4) the ability to find meaning.

Learning to enjoy

The ability to derive pleasure from life is partly inborn (trait negativity-positivity), but can to some extent be cultivated. Learning to take pleasure in life was part of traditional leisure-class education, which emphasized

refined pleasures, such as the tasting of exquisite wines and the appreciation of difficult music. Yet, it is also possible to develop an enjoyment of the common things in life, such as breakfast or watching the sunset. Training in savouring simple pleasures is part of some religious practices.

Hedonistic enjoyment is valued in present day modern society and figures prominently in advertisements. Yet, techniques that help us to gain the ability to enjoy are underdeveloped. There are no professional enjoyment trainers, at least no trainers aiming at improving our general level of enjoyment. There is professional guidance for specific types of pleasures, such as how to appreciate fine arts, and often, its main goal is to sell a particular product.

Still, it would seem possible to develop wider enjoyment training techniques. One way could be to provide training in 'attentiveness', possibly using meditation techniques. Another option could be the broadening of one's repertoire of leisure activities, which could link up with expertise in various stimulation programs. A third way could be looking at ways to remove inner barriers to enjoy, which could be linked to clinical treatment of a-hedonic.

Learning to choose: As mentioned above, happiness depends also on the choices one makes in life and hence also on one's ability to choose. The art-of-choosing involves several skills.

One such skill is getting to know what the options are. This aptitude can be improved by learning and this is one of the things we do in consumer education. Expertise in this field can be used for training the charting of wider life options.

Another requirement is an ability to estimate how well the various options would fit one's nature. This requires self-knowledge and that is also something that can be improved, self-insight being a common aim in training and psychotherapy.

Once one knows what to choose, there is often a problem of carrying it through. This phase requires aptitudes such as perseverance, assertiveness and creativity, all of which can be strengthened and are in fact common objectives in vocational trainings.

The next step in the choice process is assessing the outcomes, in term of the above-mentioned distinction, assessing whether 'expected utility' fits 'experienced utility'. This phase calls for openness to one's feelings and a realistic view on one's overall mood pattern. Training in mood monitoring is common practice in psychotherapy and could possibly be improved using computer based techniques of experience sampling.

The problem is not so much to develop such training techniques, but to separate the chaff from the corn. That will require independent effect studies. Once such techniques have been proven to be effective, a market will develop.

Learning to grow: Happiness depends largely on the gratification of basic needs, and an important class of needs is ‘growth-needs’ (Maslow, 1954), also referred to as ‘functioning needs’ or ‘mastery needs’. These needs are not restricted to higher mental functions, but also concern the use and development of the body and senses. In animals, the gratification of these needs is largely guided by instinct, but in humans it requires conscious action. Cultures typically provide standard action-patterns for this purpose, such as providing vocational career scripts or artistic interests, but people must also make choices of their own, in particular in multiple-choice societies. Failure to involve oneself in challenging activities may lead one into diffuse discontent or even depression, this happens regularly, for example after retirement from work. Thus, another art-of-living is to keep oneself going and developing.

Intervention would also seem possible in this case. Mere information will probably be useful and one can also think of various ways to get people going. Once again, training techniques can build on available experience, in this case experience in various activation programs. There is already an ample supply of ‘growth trainings’ on the peripheries of Psychology, but yet little evidence of the effectiveness of such interventions, and certainly no proof of long term effects on happiness.

Helping to find meaning: Probably, but not certainly, happiness also depends on one finding meaning in one’s life. Though it is not sure that we have an innate need for meaningfulness as such, the idea of it provides at least a sense of coherence. Finding meaning in one’s life requires that one develops a view of one’s life and that one can find worth in it. These mental knacks can also be strengthened and it is possible that one can also learn to live with the philosophical uncertainties that surround this issue. There is experience on this matter in the existential counselling and in practices such as ‘life-reviewing’ (Holahan & Wonacott, 1999) and ‘logo-therapy’ (Frankl, 1946). As far as I know, the impact of such interventions on happiness has yet to be investigated.

Professional life-counselling: If we feel unhealthy we go to a medical general practitioner, who makes a diagnosis and either prescribes a treatment or refers us to a medical specialist. If we feel unhappy, there is no such generalist. We have to guess about the possible causes ourselves and on that basis consult a specialist who may be a psychologist, a marriage counsellor or a lawyer. Professional guidance for a happier life is unavailable as yet. This is a remarkable market failure, given the large number of people who feel they could be happier. The size of the demand is reflected in the booming sales of self-help books and the willingness to pay for things that promise greater happiness,

such as cosmetic surgery and second homes. The main reason is probably that the knowledge basis for such a profession is still small and that trust in happiness counselling is undermined by the many quacks operating in this area.

Still, there seems to be a future for professional counselling for a happier life and for related life coaching and training. There is demand for such services, but as yet no proper supply. Much can be gained by developing that supply. One of the ways is to stimulate the professionalization of current activities in that area, amongst other things by the follow-up people who use such services to establish what interventions add to happiness or do not. The development of professional life counselling could also profit from the above advised research of the effects of long-term changes on happiness following major life-choices.

3.3.2 *Improving the livability of the institutions:* Happiness depends further on environmental factors, amongst which the residential conditions in which we live and the organizational context in which we work or get educated.

There is a lot of research on residential preferences, but amazingly little research into the effects of residential conditions on happiness. Research is driven by the wish to sell and the focus is therefore on expected utility rather than on experienced utility. As a result, there is not yet solid evidence base for promoting happiness at the local level, and decision making is still dominated by mere beliefs

We find more research in the field of work organization, in particular a considerable body of literature on job-satisfaction. Yet, job-satisfaction does not always coincide with life-satisfaction and this literature leaves us largely in the dark about cause and effect. There is also a large literature on the negative effects of work-conditions, such as professional injuries and burnout, but this literature is largely blind for positive effects. As a result there is as no good evidence base for happiness promotion in this field either. The same holds for schools. We know a lot about the exam results produced by educational institutions, but hardly anything about their impact on long-term happiness.

3.3.3 *Improving the livability of the society:* Happiness also depends on the macro-social conditions in which one lives and in this case we can build on a better evidence base. Comparative research has revealed wide differences in average happiness across nations, scores on a 0 to 10 step scale ranging from 8,2 in present day Denmark to 3,2 in Tanzania (Veenhoven, 2006). There is a clear pattern in these differences. About 83% of the variation in average happiness can be explained by 'hard' country characteristics, such as economic development, political democracy and

rule of law (Veenhoven & Kalmijn, 2005, p. 436). What do these data tell us about the possibilities to create greater happiness for a greater number?

Material wealth

People live happier in rich countries than in poor countries, the correlation between average happiness and buying power per head is $+.66$! The relationship is not linear, but follows a pattern of diminishing returns. Growth in material wealth adds little to happiness once the buying power per head is more than \$ 10,000 per year. So, economic development adds most to happiness in poor countries.

Political democracy

People also live happier in democratic countries. The correlation is less strong in this case ($r = +.43$), but follows a linear pattern, suggesting that happiness can also be advanced by further democratization in already democratic countries. This deduction is supported by the fact that, in democratic and happy Switzerland, happiness appears to be highest in the cantons where opportunities for having a referendum are greatest (Frey & Stutzer, 2000)

Freedom

Likewise, people live happier in free countries. This holds for three kinds of freedom: economic freedom, political freedom and freedom in the private sphere of life. Economic freedom appears to be most important for happiness in poor nations and private freedom in rich nations (Veenhoven, 2000b). The relationship is again linear, suggesting that the saturation point has not yet been reached in the present day world.

Governance

Comparative research has also revealed that happiness prospers in well-governed countries. There are strong correlations with rule of law ($r = +.53$) and government effectiveness ($r = +.60$). These relationships are largely independent of economic development and appear in all regions of the world (Ott, 2006)

This all suggests that greater happiness for a greater number can be achieved by policies that aim at a decent material standard of living, the fostering freedom, democracy and good governance.

4 Conclusions

Happy people live longer, probably because happiness protects physical health. If so, public health can be furthered by policies that aim at greater happiness of a great number. Current public health policies seem only to affect happiness marginally.

Happiness can be advanced in several ways: At the individual level, happiness can be furthered by means of 1) providing information about consequences of life-choices on happiness, 2) training in art-of-living skills, and 3) professional life-counselling. At the level of society greater happiness for a greater number can be achieved by policies that aim at a decent material standard of living, the fostering of freedom, democracy and good governance. Evidence-based happiness engineering requires more research.

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