Life dissatisfaction and subsequent work disability in an 11-year follow-up

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ABSTRACT

Background. Mental disorders are associated with disability, but the long-term effects of low subjective well-being on work ability in general population are not known. In this study we investigated whether self-reported life dissatisfaction predicts work disability.

Method. A nationwide sample of Finnish twins aged 18–54 years ($N = 22\,136$), unselected for health status responded to a health questionnaire with a four-item life satisfaction scale (range 4–20) covering interest, happiness, easiness and loneliness of life in 1975 and 1981. Cox regression for all subjects and conditional logistic regression for discordant twin pairs were used to compare the risk of subsequent work disability ($N = 1200$) (Nationwide Disability Register) between the dissatisfied and satisfied.

Results. Life dissatisfaction predicted subsequent (1977–87) work disability pension due to psychiatric and non-psychiatric causes among the healthy at baseline, and that due to psychiatric causes among the ill. After controlling for age, marital status, social class and health behaviour, these risks remained significant. Repeatedly reported (1975 and 1981) life dissatisfaction was strongly associated with increased (age-adjusted) risk of subsequent (1982–87) work disability due to psychiatric and also that due to non-psychiatric causes among the healthy. When twin pairs discordant for end-point disability status were analysed, risk differences related to life satisfaction were only slightly decreased, but they did not differ significantly between monozygotic and dizygotic pairs.

Conclusion. Life dissatisfaction predicts subsequent work disability especially among the healthy.

INTRODUCTION

In facing the inevitable discrepancy between demands and resources of health care, more knowledge is needed about the fatal and non-fatal consequences of health disorders (Michaud *et al.* 2001). Work disability, indicating severe loss of functioning, is one adverse non-fatal outcome. It imposes a heavy burden on the individual and on society (Kouzis & Eaton, 2000). Early pension is the endpoint in the complex pathway leading to disability (Upmark *et al.* 1999). In this process both mental and physical health play a role (Stewart *et al.* 1989; Armenian *et al.* 1998; Isometsä *et al.* 2000). The earlier it is possible to intervene in this process the better.

Previously, a strong association has been found between several psychiatric disorders and disability (Ormel *et al.* 1994; Upmark *et al.* 1999; Judd *et al.* 2000*a*; Kouzis & Eaton, 2000). Major depression has gained worldwide ranking as the fifth leading cause of the global disease burden measured according to disability-adjusted life years and its impact is expected to

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grow (Michaud *et al.* 2001). However, it is not only major depression, that is a burden to an individual and to society, but also less severe or undiagnosed depression or even poor subjective well-being. Their effects can be long-lasting. Indeed, in depressive patients, even among those with only subthreshold depression, disability and loss of functioning have been shown to persist for years leading to unexpectedly deleterious health outcomes (Wells *et al.* 1989, 1992; Broadhead *et al.* 1990; Hays *et al.* 1995; Judd *et al.* 1996, 2000*b*).

In Finland, psychiatric disorders are now-adays the most common cause of work disability pension. During the period 1987–1994 a three-fold increase in new disability pensions due to affective disorders was observed (Salminen *et al.* 1997). In order to intervene or prevent the adverse process leading to work disability, we should focus on risk factors and early signs of psychiatric disorders.

Self-reported life dissatisfaction measured with a four-item scale is strongly associated with depressive symptoms both in psychiatric patients (Koivumaa-Honkanen *et al.* 1996) and in general populations (Koivumaa-Honkanen *et al.* 2000, 2001*a*). In depressive patients it also parallels the severity of depression diagnoses and responds to recovery from depression (Koivumaa-Honkanen *et al.* 2001*b*). Thus, it enables the evaluation of health effects of both diagnosed and undiagnosed/untreated depressive disorder in general populations, while also providing information on the consequences of less severe poor subjective well-being. Also patients with schizophrenia report much lower life satisfaction than the general population (Koivumaa-Honkanen *et al.* 1996). In a healthy general population self-reported life dissatisfaction is associated with poor health, social situation and health behaviour, but longitudinally it is also a long-term predictor of both fatal (Koivumaa-Honkanen *et al.* 2000, 2001*a*) and non-fatal health consequences (Appelberg *et al.* 1996; Koivumaa-Honkanen, 1998; Korkeila *et al.* 1998; Sarlio-Lähteenkorva *et al.* 2000).

The aim of this study was to examine how self-reported life dissatisfaction predicts work disability in adults during a long-term follow-up, while taking into account the baseline health status.

METHOD

Subjects

Our study subjects were derived from The Finnish Twin Cohort, which consists of a nation-wide sample of Finnish same-sex twin pairs born before 1958 with both members alive in 1975. A baseline postal questionnaire was sent in 1975 to twin candidate pairs and a follow-up questionnaire in 1981 to the verified twins. The aim of the project was to study environmental, psychosocial and genetic factors that affected public health problems. Both questionnaires covered sociodemographic and health-related factors including a four-item scale for measuring life satisfaction. After a complete description of the study to the subjects, written informed consent was obtained. The study procedure has been presented in more detail elsewhere (Kaprio *et al.* 1978; Koivumaa-Honkanen *et al.* 2000). The baseline response rate for adults aged 18–54 in 1975 was 88·4%.

Four-item life satisfaction scale

A four-item life satisfaction scale provided a sum score (LS) that ranges from 4 to 20. On the basis of the sum score the study subjects were categorized into the satisfied (LS: 4–6), the intermediate group (LS: 7–11) or the dissatisfied (LS: 12–20). The intermediate group consisted of those with life satisfaction score within one standard deviation of the mean (Koivumaa-Honkanen, 1998). Subjects were asked to rate four aspects of life satisfaction: interest in life, happiness, ease of living and loneliness (very interesting/happy/easy/not at all lonely = 1; fairly interesting/happy/easy = 2; fairly boring/ unhappy/hard/lonely = 4; very boring/unhappy/ hard/lonely = 5). Missing data and the response 'cannot say' were scored as 3. If three or four items were missing, the sum score was recorded as 'missing'. Responses for all four items were provided at baseline by over 98% of respondents (Koivumaa-Honkanen *et al.* 2001*a*).

Criteria for inclusion

The criteria for inclusion in the present study were: (1) an age of 18–54 years on 1 January 1976, alive on 1 May 1976 and baseline life satisfaction data available ($N = 26\,781$); (2) not being granted a pension before 1 January 1977 ($N = 25\,929$); and (3) being a verified twin

($N = 22\,136$). Thus, study population consisted of 11 037 men and 11 099 women. The satisfied consisted of 19·7%, the intermediate group of 63·9% and the dissatisfied of 16·5% of the study population. The mean age at baseline was 31·4 years (95% CI 31·1–31·6) for men and 31·0 years (95% CI 30·7–31·2) for women.

Baseline health

Data from three nationwide registries with the unique identification code assigned to each Finnish citizen were linked to the Finnish Twin Cohort and were used to assess baseline health: the Hospital Discharge Registry for in-patient admissions during the period January 1972 to April 1976, the Cancer Registry for malignant cancers diagnosed before 1977 and the Registry of Specially Refunded Medication covering medication for 34 selected diseases, including psychoses, diagnosed before 1977. The high coverage, accuracy and validity of these registries are reported elsewhere (Teppo *et al.* 1975; Keskimäki & Aro, 1991; Kujala *et al.* 1994; Koivumaa-Honkanen *et al.* 2000). Furthermore, the baseline postal questionnaire covered symptoms and life history of cardiovascular disease, stroke, diabetes and a use of a hypnotic or tranquillizer for more than 10 days during the preceding year. A subject was categorized as ill ($N = 3809$) if he/she had any of the above-mentioned factors present. Other classifications of baseline characteristics are presented in Table 1.

Work disability pensions

The nationwide data for work disability pensions was provided by the Social Insurance Institution of Finland. Every Finnish adult citizen ($\leqslant 65$ year) is entitled to daily allowance from sickness insurance for 300 work days and to work disability pension if continuously unable to work for 1 year due to disease or injury according to an evaluation made by a physician. This evaluation covers medical history and status, functional capacity, treatment received, quality of work and impairments affecting the ability to work. The eligibility for disability pension is based on the decision of experts in the Social Insurance Institution and in the case of insured workers also by experts in insurance companies (Isometsä *et al.* 2000). In this study the follow-up time for subsequent work

disability pensions was 1977–1987. Thus, the lag period of at least 1 year made it possible to ensure that only new work disability pensions that were put in process after the assessment of baseline life satisfaction were covered. Furthermore, the economic recession at the beginning of the 1990s in Finland did not affect the results of this study (Viinamäki *et al.* 2000).

Psychiatric causes for the disability pensions were accounted for by the ICD-8 codes 290–309; schizophrenia and other psychosis by codes 290–299 and other psychiatric disorders by codes 300–309.

Data analyses and statistical methods

Data analysis was carried out with STATA software (version 6, STATA Corp. Texas). The follow-up started on 1 January 1977. A person was followed until a disability pension was granted, which was the main outcome to be studied, or until a person was granted another type of pension or died during the follow-up. Otherwise, the follow-up ended on 1 January 1988. Data on granted pensions included the month and year of its beginning. In the Cox analysis they were recorded as having begun on the 15th day of each month. Since a study subject could be an age- and sex-matched sibling of another study subject, the observations were not necessarily independent. Therefore, correct standard errors were computed by considering the twins in a pair as a cluster. The statistical significance of differences was tested by estimates of means (SVYMEAN procedure) for continuous variables and by the chi-squared test for categorical variables (SVYTAB procedure) corrected for clustered data and converted into F statistics. The effect of life dissatisfaction on the likelihood of receiving a subsequent disability pension during follow-up was studied with Cox regression with/without multiple adjustments by comparing the incidence of new disability pensions among the dissatisfied (LS: 12–20) to those among the satisfied (LS: 4–6). The proportional hazards assumption was evaluated with STPHTEST and STPHPLOT procedures. Paired case–control analysis with twins discordant by their subsequent disability status was performed with conditional logistic regression in order to assess the role of familial factors on the relationship between life satisfaction and disability.

Table 1. *Distribution of baseline characteristics according to subsequent pension status in a nationwide sample of Finns aged* 18–54 *at baseline* (N = 25 929)

Characteristics	Men (N = 11 037)			Women (N = 11 099)		
	Pensioned (N = 696)	Others (N = 10 341)		Pensioned (N = 504)	Others (N = 10 595)	
Age groups			***			***
18–24	11·4	32·4		11·1	35·3	
25–34	14·8	35·6		17·3	33·9	
35–44	29·4	20·1		26·6	18·4	
45–54	44·4	11·9		45·0	12·5	
Baseline health			***			***
Healthy	60·9	86·0		48·8	82·8	
Ill	39·1	14·0		51·2	17·3	
Marital status			***			*
Cohabiting	68·3	56·1		62·1	57·0	
Non-cohabiting	31·7	43·9		37·9	43·0	
Social class			***			***
Upper	2·0	5·5		2·4	5·0	
Intermediate	55·3	34·7		57·5	30·3	
Lower	42·7	59·8		40·1	64·7	
Smoking status			***			**
Non-smoker	45·1	57·4		79·7	73·3	
1–19 cigarettes daily	28·7	28·1		17·3	23·7	
⩾20 cigarettes daily	26·2	14·5		3·0	3·0	
Alcohol grams/month			***			***
None	9·8	8·8		35·7	19·7	
0–99	20·8	26·5		46·0	51·9	
100–399	28·8	32·3		14·5	21·8	
400–799	21·1	19·2		3·0	5·0	
⩾800	19·5	13·2		0·8	1·6	
Physical activity/month			NS			NS
Active (⩾6)	39·4	40·2		34·1	36·6	
Intermediate (1–5)	47·8	47·6		51·3	49·4	
Inactive (<1)	12·8	12·2		14·6	14·0	
Life satisfaction (LS)			***			***
Satisfied (4–6)	11·0	18·6		12·3	21·7	
Intermediate (7–11)	64·4	65·3		60·3	62·6	
Dissatisfied (12–20)	24·6	16·1		27·4	15·7	

Pensioned, Subjects who were granted a work disability pension during an 11-year follow-up; Social class, lower (⩽9 years of education and ambulatory work), intermediate, upper (⩾13 years of education and sedentary work); Marital status, cohabiting (living with a partner)/single, divorced or widowed; Physical activity, frequency of ⩾30 min periods with intensity of at least to vigorous walking.
* $P < 0.05$; ** $P < 0.01$; *** $P < 0.001$; NS, not significant.

RESULTS

The number of subjects who were granted a disability pension during the 11-year follow-up was 1200 (5·4% of study subjects), of which 696 were men (6·3% of men) and 504 were women (4·5% of women). Psychiatric causes accounted for 22·6% (N = 271) of all disability pensions, 19·4% (N = 135) in men and 27·0% (N = 136) in women. Schizophrenia or other psychoses accounted for 12·5% (N = 150) of all the granted disability pensions, 11·2% (N = 78) in men and 14·2% (N = 72) in women.

At baseline, the subjects who were later granted a disability pension were more often old, ill, intimately cohabiting and from the intermediate social class as well as more dissatisfied than the rest of the study population. Their mean baseline life satisfaction score was 9·6 (95% CI 9·4–9·8) while it was 8·6 (95% CI 8·5–8·6) for the others. When health behaviour was studied, no difference was seen in physical activity in respect to subsequent work disability, but men who were granted a disability pension were more often smokers and heavy drinkers at baseline, while the opposite was true with

pensioned women (Table 1). When the healthy at baseline were examined separately they showed the same pattern for these characteristics.

Among the total study population, dissatisfaction at baseline (LS: 12–20) predicted pensioning in the ensuing 11 years hazard ratio (HR) = 2·3; 95% CI 1·9–2·9). The intermediate group (LS: 7–11) had also an increased risk (HR = 1·4; 1·1–1·6) compared to the satisfied (LS: 4–6). Life dissatisfaction predicted especially work disability pensions due to psychiatric causes (HR = 4·3; 2·9–6·6) but also those due to non-psychiatric causes (HR = 1·9; 1·5–2·3). This was true both for men (HR = 3·8; 2·1–6·8 and HR = 1·9; 1·4–2·6) and women (HR = 5·0; 2·8–9·0 and HR = 1·7; 1·2–2·5) as well as for the healthy at baseline (Table 2). After controlling for age, marital status, social class, alcohol use, smoking and physical activity, statistical significance was lost only when work disability due to non-psychiatric causes among healthy men was studied. For the ill at baseline, only the HR of work disability due to psychiatric causes was statistically significant regardless of regression model (Table 2). In the total study population, after controlling for age, baseline health status, marital status, social class and health behaviour, life dissatisfaction provided a statistically significant prediction of pensioning due to all causes (HR = 1·6; 1·3–2·0) as well as due to psychiatric and non-psychiatric causes (Table 2).

Among men the age-adjusted risk of work disability pension due to schizophrenia or other psychoses (ICD-8 290–299) related to life dissatisfaction was 4·6 (95% CI 2·0–10·6) and that due to other psychiatric disorders (ICD-8 300–309) 3·1 (1·4–6·7). Among women these risks were 6·3 (2·8–14·3) and 3·8 (1·6–8·9). When only the healthy at baseline were considered these risks for men were 3·0 (1·1–7·9) and 7·3 (1·6–32·7) and for women 4·2 (1·5–11·5) and 4·5 (1·2–16·3), respectively.

Life satisfaction data for both 1975 and 1981 was available for 19 330 twins. Out of these, 18 927 were not granted a disability pension before 1982. Among this latter group, a total of 661 work disability pensions were granted during 1982–1987. Those who repeatedly reported life dissatisfaction were at the greatest risk of becoming pensioned (HR = 3·9; 95% CI 2·5–6·1) compared with those who repeatedly

Table 2. *Risk (adjusted HR with 95% CI*) of work disability measured with granted disability pension during an 11-year follow-up (N = 1200) in relation to life satisfaction† for a nationwide sample of Finns aged 18–54 at baseline (N = 22 136)*

		Disability pensions granted	
Model with variables in addition to life satisfaction		Psychiatric causes‡ HR (95% CI)	Other causes HR (95% CI)
Age			
Healthy	18 327	4·2 (2·4–7·4)	2·0 (1·4–2·7)
Healthy women	9013	4·3 (1·9–9·4)	2·2 (1·3–3·6)
Healthy men	9314	4·0 (1·8–9·0)	1·8 (1·2–2·7)
Ill	3809	2·4 (1·3–4·5)	1·1 (0·8–1·6)
Age, cohabiting, social class			
Healthy	18 315	3·4 (1·9–6·1)	1·8 (1·3–2·5)
Healthy women	9006	3·7 (1·6–8·5)	1·9 (1·1–3·2)
Healthy men	9309	3·0 (1·3–6·9)	1·7 (1·1–2·5)
Ill	3808	1·9 (1·0–3·6)	1·0 (0·7–1·5)
Age, alcohol use, smoking status, physical activity			
Healthy	17 357	4·0 (2·2–7·2)	1·7 (1·2–2·4)
Healthy women	8512	5·0 (2·1–11·7)	2·1 (1·2–3·6)
Healthy men	8845	3·1 (1·4–7·2)	1·6 (1·0–2·4)
Ill	3543	2·6 (1·4–4·7)	1·1 (0·7–1·6)
Age, cohabiting, social class, alcohol use, smoking status, physical activity			
Healthy	17 352	3·3 (1·8–6·2)	1·6 (1·1–2·3)
Healthy women	8510	4·3 (1·7–10·7)	1·8 (1·1–3·2)
Healthy men	8842	2·5 (1·1–5·9)	1·5 (0·9–2·3)
Ill	3542	2·1 (1·1–3·9)	1·0 (0·7–1·5)
Age, health status, cohabitation, social class alcohol use, smoking status, physical activity			
All	20 894	2·6 (1·7–4·1)	1·3 (1·0–1·7)
Women	10 441	3·1 (1·6–6·1)	1·3 (0·8–1·9)
Men	10 453	2·1 (1·2–3·9)	1·4 (1·0–1·9)

* Hazard ratio with 95% confidence interval.

† Dissatisfied (life satisfaction score of 12–20) compared with satisfied (life satisfaction score of 4–6).

‡ Psychiatric causes for the disability pensions accounted for the ICD-8 codes 290–309.

Categories of the variables, compare Table 1.

reported satisfaction with life (Table 3). This was even more prominent for work disability pensions due to psychiatric causes (N = 135; HR = 15·5; 4·8–50·2), while the HR for disability pensions due to non-psychiatric causes (N = 526) was 2·6 (1·6–4·3). When the healthy were examined separately, repeatedly reported dissatisfaction predicted work disability pensions due to all causes (HR = 3·4; 2·0–5·9), both due to psychiatric causes (HR = 11·0; 2·5–48·8) and due to non-psychiatric causes (HR = 2·6; 1·4–4·7).

Table 3. *The age-adjusted risk (HR with 95 % CI*) of work disability pension during* 1982–1987
related to life satisfaction both in 1976 *and in* 1981†

| | Life satisfaction 1981 | | | | | |
| | Satisfied | | Intermediate | | Dissatisfied | |
	HR (95 % CI)	N/Group‡	HR (95 % CI)	N/Group‡	HR (95 % CI)	N/Group‡
Life satisfaction 1975						
Satisfied	1·0	26/1559	1·6 (1·0–2·6)	52/2019	2·1 (0·9–5·2)	6/211
Intermediate	1·5 (0·9–2·4)	44/1777	1·7 (1·1–2·5)	303/8464	2·9 (1·8–4·5)	82/1479
Dissatisfied	2·4 (1·0–5·4)	7/220	1·9 (1·2–3·1)	52/1475	3·9 (2·5–6·1)	89/1063

* Hazard ratio with 95 % confidence interval.
† Life satisfaction score: 4–6 (satisfied); 7–11 (intermediate); 12–20 (dissatisfied).
‡ Numbers of subjects granted work disability pensions/subjects with life satisfaction score available both in 1976 and 1981.

Table 4. *Risk (OR with 95 % CI*) of work disability measured with granted disability pension during
an* 11-*year follow-up in relation to life satisfaction for twin pairs discordant according to their
subsequent disability status in paired analysis with conditional logistic regression*

| | All twins | | Dizygotic twins | | Monozygotic twins | |
Cause of disability	N†	OR (95 % CI)	N†	OR (95 % CI)	N†	OR (95 % CI)
Psychiatric	202	4·0 (1·9–8·7)	134	4·4 (1·7–11·0)	50	2·1 (0·3–13·8)
Psychosis‡	117	6·3 (2·0–20·1)	79	8·7 (2·1–36·8)	30	2·5 (0·2–30·8)
Other	93	2·6 (0·9–7·4)	59	2·2 (0·6–8·1)	24	1·6 (0·1–29·2)
Non-psychiatric	573	1·3 (0·8–2·1)	379	1·4 (0·8–2·4)	138	0·9 (0·3–2·6)

* Odds ratio with 95 % confidence interval.
† Number of discordant twin pairs.
‡ Schizophrenia and other psychosis (ICD-8 codes 290–299).

According to the paired analyses with twins discordant by their end-point disability status (including both the healthy and the ill at baseline), life dissatisfaction increased the risk of becoming disabled to work due to any cause (OR = 1·8; 95 % CI 1·2–2·7; 747 discordant pairs), due to psychiatric causes, especially due to schizophrenia and other psychoses (Table 4). Statistical significance was not reached when disability due to other psychiatric causes or non-psychiatric causes were studied separately. No significant differences in the studied relationships were found between monozygotic and dizygotic twins when separately studied, but the increase in the risks was not significant among the monozygotic twin pairs (Table 4).

DISCUSSION

Self-reported life dissatisfaction predicted subsequent severe work disability regardless of its cause among the healthy at baseline. Controlling for age, marital status, social class, and health behaviour did not change this pattern. Among the ill at baseline, life dissatisfaction predicted work disability due to psychiatric causes.

Previously, life dissatisfaction has been reported to predict especially male mortality (Koivumaa-Honkanen *et al.* 2000, 2001*a*). According to this study it is also a strong risk factor for work disability in healthy men and women, the risk related to psychiatric causes being especially high among women. Our criteria for baseline health were comprehensive. Data were obtained from self-reports and from nationwide registries. Thus, our findings among the healthy underline the fact that reported poor subjective well-being indicates health hazard in itself.

In cross-sectional settings life dissatisfaction has been shown to be more common among psychiatric in-patients than in any other in-patient group (Koivumaa-Honkanen, 1998) being closely related to depressive symptoms both

in a general population (Koivumaa-Honkanen *et al.* 2000, 2001*a*) and in psychiatric patients (Koivumaa-Honkanen *et al.* 1996, 2001*b*). Now, we have shown prospectively that life dissatisfaction can also be an early indicator of poor mental health. It appears to precede work disability due to both psychotic and non-psychotic disorders.

Life dissatisfaction also predicted work disability due to somatic causes among the healthy. The absence of effect among the ill might be partly explained by the nature of this category, which already included several indicators of poor mental health in addition to those of poor somatic health.

Life satisfaction is continuously distributed in the population, measuring both the positive and the negative pole of subjective well-being. When studying only the healthy at baseline, the natural course of both undiagnosed depression as well as less severe loss of subjective well-being can be investigated. The observed dose–response pattern in prediction of work disability was presented also with each of the four items of the scale. Their response alternatives from positive to negative pole, including the 'cannot say' – response (9·9% of the responses) in the middle, were linearly related to increasing risk of subsequent work disability (data not shown). This confirms further that subjective well-being, and not only certain diagnostic categories, is important for subsequent health and functioning.

The strength of this study was its large nationwide sample and high response rate providing self-reported data, long follow-up and the use of nationwide registries. Our follow-up extended up to the beginning of 1988 before the economic recession of the early 1990s (Viinamäki *et al.* 2000). Subsequently, the incidence of affective disorders as a cause of work disability in Finland has tripled (Salminen *et al.* 1997). Whether this increase affects the strength of the found relationship remains to be determined. Indeed, several factors such as education, nature of work, time period or country may affect granting of work disability pension (Kouzis & Eaton, 2000). In our analyses social class included assessment of both education and the physical demands of work. Despite all the uncertainties in granting a disability pension the main finding is that life dissatisfaction predicts severe work disability. Controlling for several factors or extending the lag period before starting to count disability pensions from 1 to 3 years did not change it.

Previous studies showed that being a twin does not affect the predictive ability of life satisfaction for mortality or suicide when compared with singletons (Koivumaa-Honkanen *et al.* 2000, 2001*a*). In this study the potential influence of twinship was taken into account in the statistical analyses by clustering. Paired case–control analyses with twin pairs were used to assess whether the observed association for life satisfaction with disabilty could be due to underlying common early family and genetic factors. If these factors cause both life dissatisfaction and increase the risk of disability, one would expect the pairwise analyses to show no relationship between the exposure (life dissatisfaction) and the outcome (disability pension). However, the risk of subsequent disability related to life dissatisfaction was found also in the pairwise analyses.

The growing importance of mental health worldwide should alert workers of connected fields of health and the social sector to take early signs of poor mental health into account. Social situation and health behaviour modified the relationship between life dissatisfaction and disability. Moreover, mental and somatic health are interwoven (Stewart *et al.* 1989; Armenian *et al.* 1998; Isometsä *et al.* 2000). All of these factors are amenable to intervention by the subjects, their social network, the health care system or other sectors of society.

Due to the economic and subjective burden of work disability, identification of early signs of subsequent loss of functioning is crucial. The life satisfaction scale could help in the early identification of subjects who might need more careful evaluation. An early intervention and prolonged support of a more targeted group might slow or prevent the progression of poor well-being to work disability.

Conclusion

Life dissatisfaction predicts subsequent work disability, especially among the healthy.

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