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Organizational Merger and Psychiatric Morbidity: A Prospective Study in a Changing Work Organization

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Abstract

Background: Prospective studies on the relationship between organizational merger and mental health have been conducted using subjective health indicators. The objective of this prospective occupational cohort study was to examine whether a negative change during an organizational merger is an independent predictive factor of psychiatric morbidity.

Method: Survey data on organizational characteristics, health, and other factors were collected prior to (1996) and after the merger (2000); register data on psychiatric morbidity at baseline (1/1994—9/2000) and during the follow-up (10/2000—12/2005). Participants were 6 511 (77% men) industrial employees aged 21—65 with no register-based diagnosed psychiatric events prior to the follow-up (the Still Working Study). During the follow-up, 252 participants were admitted to hospital due to psychiatric disorders, were prescribed a psychotropic drug, or attempted or committed suicide.

Results*:* A negative self-reported change in the work organization during the merger was associated with increased risk of post-merger psychiatric event (Hazard Ratio 1.60; 95% Confidence Interval 1.19-2.14). This association was independent of mental health-related factors measured before the merger announcement, such as demographic characteristics, occupational status, personal orientation to life, self-rated health, self-reported psychiatric morbidity, or chronic disease.

Conclusions: A negative change in work organization during an organizational merger may elevate the risk for post-merger psychiatric morbidity.

Introduction

To stay competitive and efficient in the current global business environment, companies often have to merge with one another. Mergers often cause considerable changes in work organizations, work teams, roles, and job statuses. From the employees' perspective, factors such as continuity (1), security (2), and predictability (3) may be threatened. Merger-related changes may therefore worsen working conditions (3-5), increase psychopathological symptoms (6), and have adverse effects on employees' mental health (6-8).

Although organizational mergers have become globally increasingly common, surprisingly little is known on the mental health effects related to them. Longitudinal studies on the health effects of organizational changes have mainly dealt with the effects of downsizing (9), changes in labour market status (10), employment instability (11), and reorganizations within one workplace (6). Both the survivors of the downsized firms and workers with an unstable job suffer from mental health problems (e.g., increased use of psychotropic drugs) more often than those who have not experienced downsizing or who have a more stable job (6)(11)(12). Indeed, sparse prospective evidence suggests that a decline in one's status during a merger may be associated with at least a temporary decline in one's psychological well-being (13). However, no long-term prospective studies have been conducted on the impact of an organizational merger on the post-merger psychiatric morbidity of employees.

In this five-year prospective cohort study, our objective was to examine whether a self-assessed change (improved or worsened situation) during an organizational merger (8/1998—9/2000) predicted the onset of new psychiatric events (measured by

hospitalization, drug prescription, attempted or committed suicide) after it (10/2000—12/2005) among employees who did not have a psychiatric disorder prior to or during the merger according to the health records (1/1994—9/2000). In addition, we examined whether the association was independent of various indicators of pre-merger health status and other baseline characteristics, and whether certain socio-demographic groups were particularly vulnerable to the negative effects of a merger.

Methods

Procedure

Data were derived from the ongoing Still Working prospective cohort study examining the work-related antecedents of morbidity and mortality in a multinational forest industry corporation (14-15). In this study, we used a link between a personal identification code of the surveys and the national ID number given to all Finns at birth, to merge the questionnaire data with data from national health registers. The approval of the ethics committee of the Finnish Institute of Occupational Health was obtained for the study.

Study context

The merger was performed between two companies based originally in Finland and Sweden employing more than 40 000 employees altogether globally. It was announced in the summer of 1998 and was carried out in 1999 and in early 2000. In Finland, where this prospective study was conducted, the company had been a stable traditional

employer for several decades. The majority of the industrial plants were dispersed around the country, often being the major employer in the sparsely populated local areas. The merger did not lead to dramatic changes such as large-scale redundancies during the study period, but evident changes in work roles, supervision, information practices, and other procedures did take place.

Study design

As Figures 1 and 2 show, we collected the data in four phases, twice before the merger and twice after. At Time 1, the data on baseline psychiatric morbidity were collected between January 1, 1994 and September 30, 2000 from the national health registers (Hospital Discharge Register, Drug Imbursement Register). In spring 1996, prior to the merger, data on the subpopulation of employees who responded to the survey on psychosocial factors and subjective health were gathered (Time 2). During autumn 2000, a post-merger survey (Time 3) on work conditions, recent organizational changes, and subjective health was carried out. In both survey phases, the questionnaires were sent to the work units, distributed to employees by their supervisors, and, once completed, mailed directly to the Finnish Institute of Occupational Health. Participation was voluntary, and confidentiality was assured to all employees. After the second survey assessment, data on post-merger psychiatric morbidity from October 1, 2000 to December 31, 2005 (Time 4) was collected from the national mortality register and the same national health registers as at Time 1.

Participants

Two study populations were formed. When generating Study Population I (including assessments at Time 1, 3, and 4), we excluded participants with a history of hospital admissions or drug purchases related to psychiatric disorders by baseline (*n*=420) from the eligible study population (*n*=9 705). The final cohort of 6 511 employees consisted of employees who (1) were free from psychiatric disorders (no recorded hospital admissions or drug purchases) before the survey on October 1, 2000; (2) had worked for the company for at least 12 months before the survey in 2000; (3) responded to the scale of organizational change; (4) had no missing values for any other study variables; and (5) were identified from the database of the National Population Register Centre. The mean length of follow-up was five years and two months (range 0.0—5.3 years). At Time 3, the mean age was 45 (range 21—65). Women (23% versus 22%, p=0.031), non-manual workers (36% versus 28%, p<0.001), and married participants (63% versus 61%, p=0.001) were overrepresented in the final study population whereas no difference emerged according to age. The same exclusion criteria (1—5) was applied in Study Population II of 4 096 employees who had responded to the surveys both before (Time 2) and after the merger (Time 3). Their baseline characteristics were more or less identical to the Study Population I; the participants were only somewhat older (mean age 47). The use of this population offered an opportunity to control the impact of several potential confounders measured prior to the merger announcement.

Assessment of Change during Organizational Merger

At Time 3 we assessed the employees' experiences of the merger period by asking what the course of events has been like during the organizational change. The study participants evaluated (1) the change in one's own standing at work (improved, unaltered, deteriorated), (2) the development within the work unit (1=very positive... very negative=5), and (3) the trends in the whole company (1=very positive... very negative=5) during the preceding one to two years. A summary measure of organizational change during a merger was derived by summing the responses across the three items (α =0.68). Based on summary scores, we formed three categories indicating the experienced change: improved situation (range 0—2.32), unaltered situation (range 2.33—3.32), and worsened situation (range 3.33—5).

Ascertainment of Psychiatric Events

Data on all persons who had been hospitalized for psychiatric disorders (ICD9 codes: 291—319; ICD10 F04—F99), who had been prescribed a psychotropic drug (ATC codes N05A, N05B, N06A) or had attempted suicide before the assessment of organizational change (1/1994—9/2000) and after (10/2000—12/2005), were obtained from the Hospital Discharge Register and from the Drug Imbursement Register, respectively. These registers reliably cover all information on the hospital admissions and drug prescription purchases for each Finnish citizen residing in Finland. Diagnosis-specific data related to depression were also used (ICD9 296.1, 300.4A; ICD10 F32, F33, D34.1; ATC N06A). In addition, data on suicides (10/2000-12/2005) from the Statistics Finland national mortality register was collected.

Ascertainment of mortality

The dates and causes of death from 1 October 2000 to 31 December 2005 were obtained from Statistics Finland. The database provides virtually complete population mortality data.

Assessment of Demographic, Health-related, and Psychosocial Baseline Characteristics

In Study Population I, data on covariates were collected at Time 1 (pre-merger psychiatric events) and at Time 3 (socio-demographic characteristics). All data on socio-demographic characteristics were obtained from the National Population Register Centre, except occupational status (employer's records). Marital status (married versus unmarried) and occupational status (manual versus non-manual employees) were used as dichotomized variables. Age was used as a continuous measure, except in the age-stratified analyses (under 50 versus 50 or over). In Study Population II, job characteristics were assessed at Time 2 using the Occupational Stress Questionnaire (16), and sense of coherence (α= 0.86) - a health-enhancing personality characteristic - was measured using a 13-item version of Antonovsky's Orientation to Life Questionnaire (14, 17). Both decision authority (α= 0.80) and skill discretion (α= 0.83) at work were measured using five items (15, 18). Summary scales were computed. For descriptive purposes, the scales were trichotomised, while in the main analyses they were used as continuous measures. At Time 2, data on pre-merger subjective health status was also collected using measures of self-reported psychiatric morbidity (10-item measure on anxiety, depression, and other symptoms (14)), self-rated health (1-item measure (19), average/good versus bad), and chronic diseases (no

versus yes). Self-reported psychiatric morbidity was used as a continuous variable while other health measures were used as dichotomized variables in the analyses.

Statistical Analysis

Descriptive statistics were applied to obtain the prevalence of organizational change during a merger and the prevalence of psychiatric events by covariates. The associations between organizational change levels and confounding factors were described by cross-tabulations and $\chi 2$-tests. The association between organizational change and psychiatric morbidity was assessed using Cox proportional hazards models. For each participant, person-days of follow-up were calculated from October 1, 2000 to the death of the employee, his or her hospitalization or drug purchase or death due to psychiatric reasons, or to December 31, 2005, whichever of these three options came first. The time-dependent interaction term between predictor and logarithm of the follow-up period was not statistically significant, confirming that the proportional hazards assumption was justified (all p values > 0.32).The adjusted hazard ratios (HRs) and 95% confidence intervals (95% CIs) for three categories of organizational change (improved, unaltered, or worsened situation) were calculated, and the unaltered situation was used as a reference category. The main analyses were conducted in four steps. First, age and sex were adjusted for. Second, marital status and occupational status were also adjusted for. Third, sense of coherence and job characteristics were added to the models in the Study Population II, information of which could be used from Time 2. Fourth, the subjective health measures from Time 2 were additionally adjusted for in the same population. Additional analyses were conducted separately for other than alcohol and drug-related diagnoses and for diagnoses related to depression. In the Study Population II, stratified analyses were run

by socio-demographic characteristics. The analyses were conducted using the PHREG procedure of the SAS 9.2 statistical software package.

Results

Of all 6 511 participants with neither hospital admissions for psychiatric disorders nor use of psychotropic drugs at baseline, 59 died during the follow-up and were censored at the time of death. By the end of the follow-up, a total of 44 participants were admitted to hospital due to a psychiatric disorder, 199 were prescribed psychotropic medication by a physician, 5 participants committed and 4 attempted suicide (total *n* of cases=252, 3.9% of the study population). The mean time before the first event was 2.7 years (range 0.0—5.2 years). As Table 1 shows, employees with a psychiatric disorder were more often older employees and men. Employees with a psychiatric event after the merger had reported more symptoms of psychiatric morbidity, poorer self-rated health, chronic disease, and a lower sense of coherence prior to the merger than employees with no psychiatric events.

Table 2 presents variations in the prevalence of organizational change by demographic and other factors. Nearly 60% of the participants had experienced the organizational change rather neutrally, more than 20% saw that the situation had improved, while nearly 20% considered the changes during the merger negative. The participants who were over 50, had low self-rated health and a chronic disease prior to the merger, reported pre-merger symptoms of psychiatric morbidity, had a weak sense of coherence and weak psychosocial work characteristics, reported negative organizational changes more often than the others. Non-manual employees

experienced both negative and positive changes more frequently than manual employees.

As Table 3 shows, after adjustment for age, sex, marital status, and occupational status, a negative change in the organization during the merger was associated with a 60% increased risk of psychiatric events (95% CI=1.19-2.14). The association slightly attenuated but remained statistically significant in the Study Population II, even after the work-related psychosocial risk factors, sense of coherence, and various dimensions of subjective health status measured prior to the merger announcement were controlled (HR=1.53, 95% CI=1.06-1.99). The associations were more or less identical after alcohol-related psychiatric disorders (n=31) were excluded. The negative change in the organization during the merger was also related to subsequent events of depression. In all models, the participants who reported a negative change in organization showed the shortest time before the onset of psychiatric event.

Table 4 shows rather similar associations between organizational change and psychiatric events in separate groups according to age and sex. However, non-manual employees who had experienced the negative organizational change had a 2-fold risk of subsequent psychiatric events (95% CI=1.25-3.18) whereas manual employees were not significantly affected by organizational changes (HR=1.38, 95% CI=0.94-2.03).

Discussion

Our unique longitudinal data connecting organizational surveys and national health registers and covering a period of 11 years with four assessment phases reveal that

merger-related experiences may affect employees' mental health long after the merger process is over. Evidence suggests that when initially healthy employees considered the situation after an organizational merger worse than before, it predicted the onset of a psychiatric event during the five-year follow-up period after the merger. The association was independent of conventional mental health risk factors. The finding lends support to the earlier longitudinal findings on organizational changes and mental health using both register-based (12) and subjective (6, 13) measures of psychiatric morbidity as outcomes.

A merger can change one's work in many ways, for example the nature of the job itself, the human relations in one's work team, and the information flow in the organization (20). A merger may increase demands at work (4) and result in sleep disturbances (6). A negative organizational change is likely to be experienced as a potential threat which can exceed the adaptive resources of the employee (21) via various pathways such as uncertainty (2), decreased status (13), role conflicts (3, 5), and anxiety (22). Based on our data, it seems plausible that these types of merger-related stressful negative experiences can lead to elevated risk of psychiatric events after the most hectic period of organizational change has been passed.

Previous evidence on the association between organizational merger and mental health problems has mainly been based on subjective outcomes, and the analyses have not sufficiently controlled for the confounding effect of permanent personality characteristics, job content, or baseline mental health status. Thus, chronically weak psychosocial resources and/or personal orientation to life may have confounded the associations (23). Pre-existing mental or chronic illness may also have a role in the organizational change-psychiatric morbidity relationship. We believe that this study is

able to surmount these weaknesses. First, we used register data to assess the outcome. Furthermore, all those who had had psychiatric problems according to the medical records prior to the assessment of merger were excluded from the cohort. Finally, in the additional analyses (Study Population II), the pre-merger subjective measures of psychiatric morbidity, general health status, personal orientation to life, and job content were used as covariates. Therefore, due to our exclusion criteria and the large set of covariates used, health selection, personal orientation to life, or adverse job content were unlikely to play a major role in our results.

It is noteworthy that our stratified analyses by occupational status showed that, unlike the manual employees, the non-manual employees who were often responsible for carrying out changes during the merger, were at a particularly high risk of psychiatric morbidity after the merger period if they had reacted negatively to the organizational changes.

Some weaknesses may limit the generalizability of our findings. It is possible that some unexplored factors such as severe negative life events may have contributed to mental health risk and confounded the associations. However, it is likely that personal life crises have a rather independent or additional role in the impairment of mental health with regard to organizational changes. A great proportion of our study participants worked at industrial plants in rather small and often remote communities, where it is difficult to find a new job. Hence, for those employees who had experienced negative changes and with family responsibilities, future attempts to find a new job would have required major changes in their lives. This may have increased the impact of the negative organizational changes. In contrast, lengthy follow-up after the merger and exclusion of employees with psychiatric events during the merger (1999—2000) attenuated the relationship between the stressor and

the outcome, and this is likely to have minimized the estimated associations between organizational change and psychiatric morbidity. Yet we acknowledge that the findings of the present study should be validated in further large-scale studies. Such a replication would be useful in determining the generalizability of our findings, i.e., whether they apply to different types of merging organizations; and whether differences between societies and sectors of work moderate the effects of an organizational merger on employee psychiatric morbidity.

Practical implications

Organizational mergers and other organizational changes have become increasingly common throughout the world. The steep increase in new cases of mental ill health among working population may partly reflect the incapacity to manage organizational changes properly (24). Our longitudinal data suggest that negative experiences during a merger may lead to elevated psychiatric morbidity among employees with no earlier register-based diagnosed psychiatric disorders, especially non-manual employees seem to be vulnerable. Policymakers, employers, and occupational health professionals should recognize that an organizational merger may pose a severe risk to employees' mental health. Organizational changes such as mergers may, therefore, be important to consider in mental health prevention of employed population. Procedures for managing the inevitable organizational changes in a way which would minimize negative experiences should be further studied and implemented.

What is already known on this subject?

Mergers often cause considerable changes in work organizations, work teams, roles, and job statuses. Negatively experienced merger-related changes seem to increase stress at work and have adverse effects on employees' subjective health.

What does this study add?

The results from this follow-up study covering a period of 11 years with four assessment phases indicate that merger-related stressful negative experiences can lead to elevated risk of psychiatric events. It seems that the negative change in the organization during the merger may represent a risk factor for psychiatric disorders.

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Competing interests

None declared

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Figure legends

Figure 1 Study design, sample selection, and description of the Study Population I. Still Working Prospective Cohort Study on Finnish employees working in a large-scale forest industry company

Figure 2 Study design, sample selection, and description of the Study Population II. Still Working Prospective Cohort Study on Finnish employees working in a large-scale forest industry company

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Table 1 Cox Proportional Hazard Ratios (HR) and Their 95% Confidence Intervals (95% CI) for New Psychiatric Events by Conventional Risk Factors in the Still Working Study [a]

Predictors	N	No of Cases	HR (95% CI)	p-value
Demographic characteristics (Time 3, N=6511)				
Age				0.001
<50	4237	141	1.00	
50 or more	2274	111	1.03 (1.01 to 1.04)	
Sex				<0.001
female	1490	84	1.00	
male	5021	168	1.67 (1.29 to 2172)	
Occupational status				0.077
non-manual	2457	92	1.00	
manual	4054	160	1.34 (0.97 to 1.85)	
Marital status				0.236
non-married	2265	92		
married	4246	160	0.84 (0.64 to 1.12)	
Health measures (Time 2, n=4096)				
Self rated health				0.015
good or average	3937	151	1.00	
bad	159	12	2.08 (1.15 to 3.74)	
Chronic disease				0.002
no	3201	109	1.00	
yes	895	54	1.70 (1.22 to 2.37)	
Self-reported psychiatric morbidity				<0.001
low	3215	106	1.00	
high	881	57	1.85 (1.34 to 2.56)	
Psychosocial measures (Time 2, N=4096)				
Skill discretion at work				0.177
high	1362	41	1.00	
intermediate	1515	65	1.37 (0.92 to 2.03)	
low	1219	57	1.44 (0.96 to 2.16)	
Decision authority at work				0.340
high	1467	52	1.00	
intermediate	1390	63	1.31 (0.91 to 1.90)	

low	1239	48	1.11 (0.75 to 1.65)	
Sense of coherence				0.180
high	1500	47	1.00	
intermediate	1361	57	1.31 (0.89 to 1.94)	
low	1235	59	1.42 (0.97 to 2.10)	

[a] Adjusted for age and sex

Table 2 Experienced Organizational Change during the Merger by Demographic, Health-related, and Psychosocial Characteristics in the Still Working Study

Predictors	Situation during the Merger Improved N (%)	 Unaltered N (%)	 Worsened N (%)	p-value
Demographic characteristics (Time 3)				
Age				<0.001
<50	995 (69)	2408 (63)	732 (60)	
50 or over	457 (31)	1433 (37)	486 (40)	
Gender				0.007
female	295 (20)	929 (24)	266 (22)	
male	1157 (80)	2912 (76)	952 (78)	
Occupational status				<0.001
non-manual	812 (59)	2527 (66)	715 (59)	
manual	640 (41)	1314 (34)	503 (41)	
Marital status				0.072
non-married	503 (35)	1371 (36)	391 (32)	
married	949 (65)	2470 (64)	827 (68)	
Health measures (Time 2)				
Self rated health				<0.001
bad	18 (2)	91 (4)	50 (6)	
good or average	797 (98)	2373 (96)	767 (94)	
Chronic disease				0.001
no	670 (82)	1921 (78)	610 (75)	
yes	145 (18)	543 (22)	207 (25)	
Self-reported psychiatric morbidity				<0.001
low	100 (12)	535 (22)	246 (30)	
high	715 (88)	1949 (78)	571 (70)	
Psychosocial measures (Time 2)				
Skill discretion at work				<0.001
low	182 (22)	795 (32)	242 (30)	
intermediate	288 (35)	935 (38)	292 (36)	
high	345 (42)	734 (30)	283 (35)	
Decision authority at work				<0.001
low	176 (22)	788 (32)	275 (34)	
intermediate	253 (31)	871 (35)	266 (33)	

high	386 (47)	805 (33)	276 (34)	
Sense of coherence				<0.001
low	151 (19)	748 (30)	336 (41)	
intermediate	254 (31)	846 (34)	261 (32)	
high	410 (50)	870 (35)	220 (27)	

Table 3 Hazard ratios (HR) and Their 95% Confidence Intervals (95% CIs) Related to Increased Incidence of Psychiatric Events after the Organizational Merger, by the Category of Experienced Organizational Change

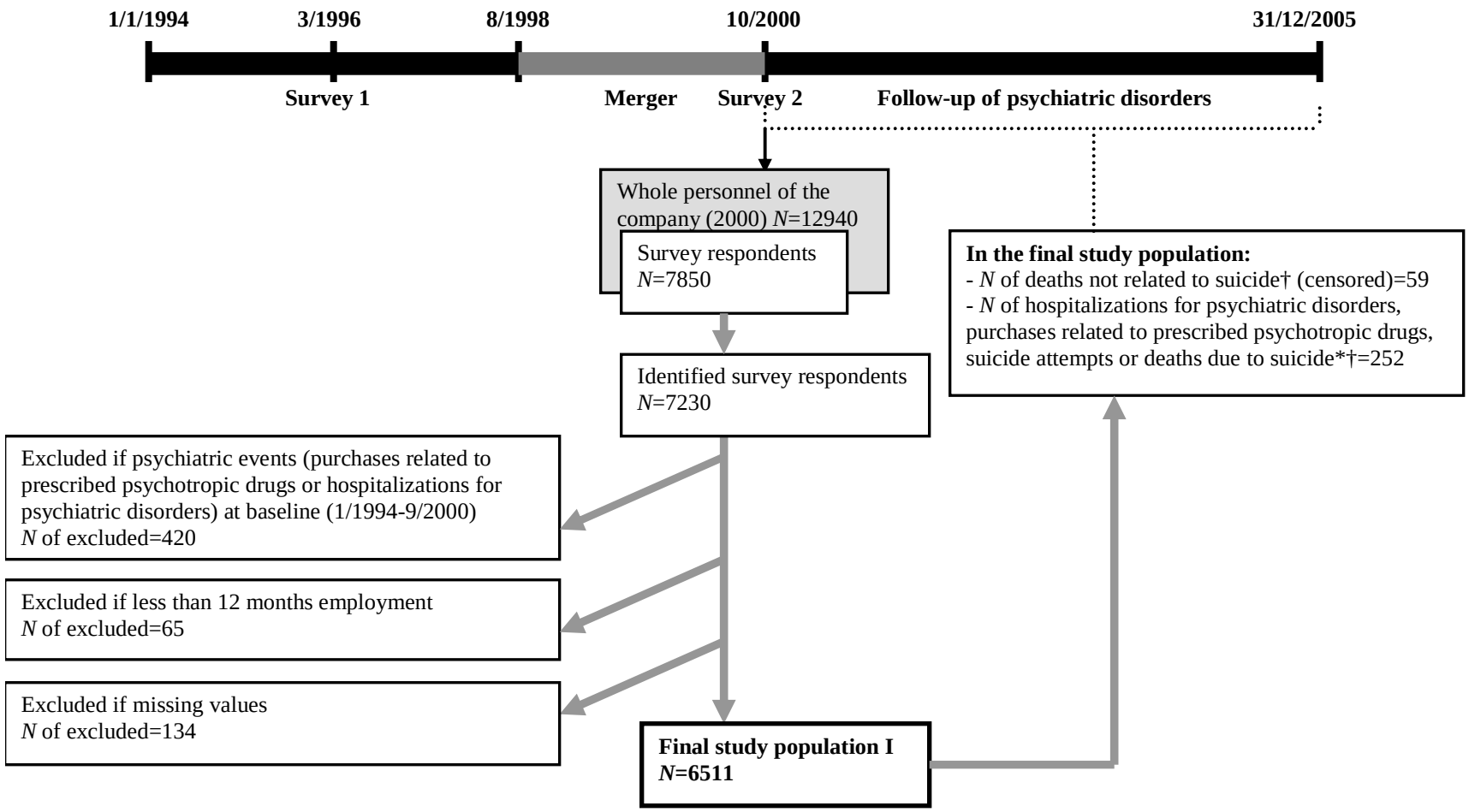
Psychiatric Events by Category of Organizational Change during a Merger	Study population I (N=6511)			Study population II (N=4096)		
	N (No of Cases)	Model 1 [a] HR (95% CI)	Model 2 [b] HR (95% CI)	N (No of Cases)	Model 3 [c] HR (95% CI)	Model 4 [d] HR (95% CI)
All-cause psychiatric events						
improved situation	1452 (49)	1.02 (0.73 to 1.41)	1.04 (0.75 to 1.44)	815 (29)	1.13 (0.74 to 1.74)	1.15 (0.75 to 1.76)
unaltered situation	3841 (136)	1.00	1.00	2464 (89)	1.00	1.00
worsened situation	1218 (67)	1.57 (1.17 to 2.10)	1.60 (1.19 to 2.14)	817 (45)	1.57 (1.09 to 2.26)	1.53 (1.06 to 2.20)
Non-alcohol related psychiatric events						
improved situation	1452 (43)	1.03 (0.73 to 1.46)	1.04 (0.73 to 1.48)	815 (24)	1.02 (0.64 to 2.27)	1.04 (0.65 to 1.65)
unaltered situation	3841 (118)	1.00	1.00	2464 (81)	1.00	1.00
worsened situation	1218 (60)	1.62 (1.18 to 2.21)	1.63 (1.20 to 2.23)	817 (41)	1.55 (1.06 to 2.27)	1.50 (1.03 to 2.20)
Depression						
improved situation	1452 (35)	0.92 (0.63 to 1.35)	0.93 (0.63 to 1.36)	815 (19)	0.88 (0.53 to 1.47)	0.89 (0.53 to 1.48)
unaltered situation	3841 (107)	1.00	1.00	2464 (73)	1.00	1.00
worsened situation	1218 (56)	1.67 (1.20 to 2.30)	1.67 (1.21 to 2.32)	817 (39)	1.62 (1.09 to 2.41)	1.58 (1.07 to 2.35)

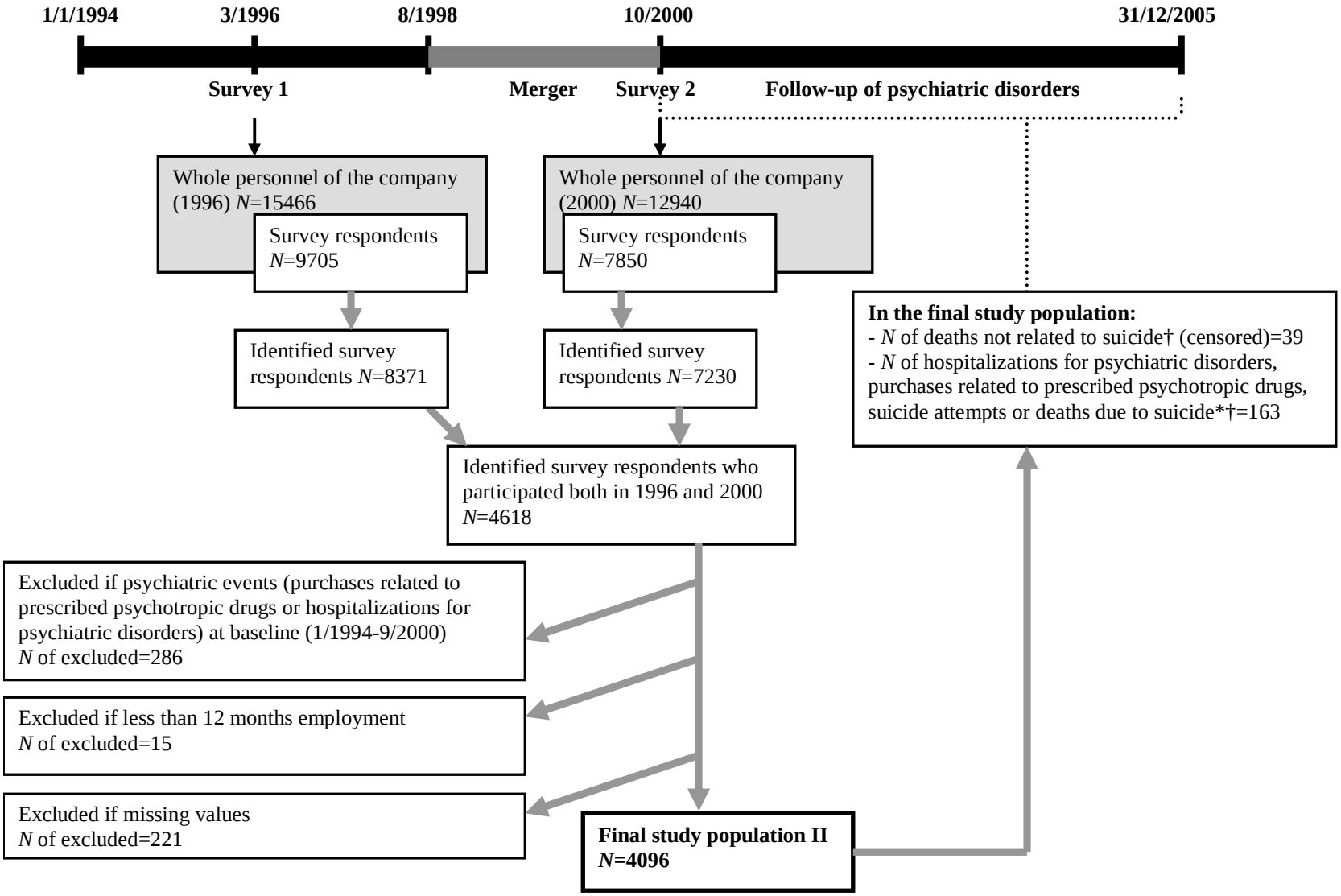
[a] Adjusted for age and sex at Time 3.
[b] Adjusted for age, sex, marital status and occupational status at Time 3.
[c] Additionally adjusted for pre-merger decision authority, skill discretion, and sense of coherence measured at Time 2.
[d] In addition to above factors adjusted for pre-merger self-rated health, self-reported psychiatric morbidity, and chronic disease measured at Time 2.

Table 4 Hazard Ratios (HR) and Their 95% Confidence Intervals (95% CIs) Related to Increased Incidence of Psychiatric Events after the Organizational Merger, Stratified Analyses by Age, Sex and Occupational Status [a]

Category of Organizational Change during a Merger by Socio-demographic Variables	Study population I (N=6511)				p-value for interaction
	N (No of cases)	HR (95% CI)	N (No of cases)	HR (95% CI)	
Age	<50 years		50 years or over		0.507
improved situation	995 (29)	0.98 (0.64 to 1.50)	457 (20)	1.09 (0.65 to 1.80)	
unaltered situation	2408 (75)	1.00	1433 (61)	1.00	
worsened situation	732 (37)	1.69 (1.14 to 2.50)	486 (30)	1.51 (0.97 to 2.35)	
Sex	Men		Women		0.569
improved situation	1157 (33)	0.95 (0.64 to 1.42)	295 (16)	1.22 (0.69 to 2.17)	
unaltered situation	2912 (92)	1.00	929 (44)	1.00	
worsened situation	952 (43)	1.43 (1.00 to 2.06)	266 (24)	1.94 (1.22 to 3.19)	
Occupational status	Manual		Non-manual		0.408
improved situation	812 (29)	1.00 (0.66 to 1.51)	640 (20)	1.14 (0.66 to 1.95)	
unaltered situation	2527 (95)	1.00	1314 (41)	1.00	
worsened situation	715 (36)	1.38 (0.94 to 2.03)	503 (31)	1.99 (1.25 to 3.18)	

[a] All models adjusted for other socio-demographic factors listed in the Table.


1/1/1994
3/1996
8/1998
10/2000
31/12/2005
Survey 1
Merger
Survey 2
Follow-up of psychiatric disorders
Whole personnel of the company (2000) N=12940
Survey respondents N=7850
Identified survey respondents N=7230
In the final study population:
- N of deaths not related to suicide† (censored)=59
- N of hospitalizations for psychiatric disorders, purchases related to prescribed psychotropic drugs, suicide attempts or deaths due to suicide*†=252
Excluded if psychiatric events (purchases related to prescribed psychotropic drugs or hospitalizations for psychiatric disorders) at baseline (1/1994-9/2000)
N of excluded=420
Excluded if less than 12 months employment
N of excluded=65
Excluded if missing values
N of excluded=134
Final study population I
N=6511


1/1/1994
3/1996
8/1998
10/2000
31/12/2005
Survey 1
Merger
Survey 2
Follow-up of psychiatric disorders
Whole personnel of the company (1996) N=15466
Survey respondents N=9705
Whole personnel of the company (2000) N=12940
Survey respondents N=7850
Identified survey respondents N=8371
Identified survey respondents N=7230
In the final study population:
- N of deaths not related to suicide† (censored)=39
- N of hospitalizations for psychiatric disorders, purchases related to prescribed psychotropic drugs, suicide attempts or deaths due to suicide*†=163
Identified survey respondents who participated both in 1996 and 2000 N=4618
Excluded if psychiatric events (purchases related to prescribed psychotropic drugs or hospitalizations for psychiatric disorders) at baseline (1/1994-9/2000) N of excluded=286
Excluded if less than 12 months employment N of excluded=15
Excluded if missing values N of excluded=221
Final study population II N=4096