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Locked in permanent employment – longitudinal associations with depressive and functional somatic symptoms

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Abstract

Objective. To study mental health as a precedent and an outcome of not being in the preferred job ('locked-in situation').

Methods. Longitudinal data from age 16 to 43 were derived from surveys of the Northern Swedish Cohort. Changes in mental health were studied with analyses of variance for repeated measures.

Results. Getting out of locked-in situation was associated with improving and getting into locked-in with worsening mental health between age 30 and age 43. The worsening was more pronounced and the improvement less pronounced in white-collar than in blue-collar employees. Poor mental health at age 16 predicted locked-in situation in early middle age.

Conclusions. The findings clarify the bidirectional nature of the associations between locked-in situation and poor mental health, as well as the importance of social class in assessing these associations.

Key terms: permanent employment; ANOVA for repeated measurements; occupational class

Introduction

The rapid change of the industrial structures requires a fast turnover of the labour force – both transitions to new workplaces and transitions to new occupations. According to the spirit of the time, readiness for such transitions is considered as a virtue, and sticking to current status and tasks as a problem. The conventional idea of a working career, largely determined by the occupational status of the childhood family and following a predictable course of transitions, is in discrepancy with the idea of the ‘post-traditional life course’ (1) that seemingly constitutes an endless chain of individual decisions. These macro level trends and associated social atmosphere permeate the more proximal levels around an individual (2, 3, 4), eventually increasing individuals’ perceptions of not being in the preferred status as regards workplace or occupation or both.

Nevertheless, individuals commonly wish for a stable and predictable course of working life. Thus, there are situations when one chooses, or is forced, to accept the current job because of poor prospects of getting a more desirable job. Such ‘locked-in’ situations are probably increasing and becoming more complex along with changes in the structures and functioning of the labour market. The present longitudinal study aims to contribute to research on the associations between locked-in situation and mental health around the turn of the millennium.

Studies on people’s inclination to stay in a job or not can be traced back to the 1950s (5, 6, 7), and to the concept of ‘job embeddedness’ (8). The focus of this research was on factors that are important for employee retention and leaving, measured as turnover rate. Later on, longitudinal studies with ‘unsatisfactory employment’ have shown negative effects on psychological well-being among young adults with non-preferred employment (9). The

'locked-in' concept was introduced in the pioneering work of Aronsson and collaborators (10, 11), who turned the focus to the health consequences of being stuck in an unwanted job.

In their seminal work, Aronsson and Göransson (10) showed that being locked-in at work, i.e. being in a non-preferred occupation or an undesired workplace, is associated with self-reported stress and depression-related symptoms. More recently, similar findings have been obtained regarding long-term sick leave (12), Muhonen (13) showed an association with psychological distress but not with subjective physical health complaints, and Bernard-Oettel and collaborators (14) found associations with psychological distress and general self-rated health. A longitudinal study by Stengård and collaborators (4) also showed that the health, measured as self-rated health and depressive symptoms, of the locked-in employees is relatively poor; moreover, a change from a locked-in to a non-locked-in situation was beneficial whereas an opposite change was detrimental to the health of an individual. These findings were partly confirmed in the study by Canivet and collaborators (15), showing that a locked-in situation between 1999/2000 and 2005 predicted psychological distress in 2010. However, those with a change from a locked-in to a non-locked-in situation showed worse mental health than those moving from a non-locked-in to a locked-in situation, contrary to what the previous study by Stengård (4) showed.

The studies referred to above have not specifically explored possible reversed causation, i.e. that poor health could also be a reason, not only a consequence of the locked-in situation. The issue of bi-directional effects was approached in another study by Stengård and collaborators (16) with helplessness as the critical outcome variable. With the help of structural modelling of four-year follow-up data, the study showed that helplessness levels and workplace locked-in status have a reciprocal relationship over time.

In sum, the locked-in concept can be considered as theoretically established (10, 17), while previous researches have measured it in various ways. This may partly explain why findings from studies on its associations with health are partly controversial. But the body of research is still small. In particular, earlier studies have not paid sufficient attention to potential gender and socioeconomic status related differences in the association between locked-in situation and mental health. Moreover, specific studies are needed in order to clarify health problems as determinants of the locked-in situation. It is evident that severe chronic diseases and handicaps limit the possibilities to get a new job or occupation, but seeing the possibilities as poor may also be due to unrealistic pessimism, or even be a symptom of depression. In other words, there is a risk of ‘common method bias’ in studying the associations between mental health and locked-in perceptions.

The present study aims to contribute to the literature in the following ways. First, we analyse if earlier findings of the associations between locked-in situation and mental health can be replicated with the methods and the data from the Northern Swedish Cohort. Second, we explore the importance of health as an independent predictor of the locked-in situation. Moreover, we present a gender hypothesis and an occupational class hypothesis. Locked-in may be associated to poor mental health more strongly among women due to the fact that low decision latitude at work – which could be expected to be related to feelings of locked-in – is more common among women than among men (18). Locked-in may also be associated to poor mental health more strongly among the white-collar than the blue-collar employees due to the less steep hierarchy of possible work posts and associated career expectations among the latter.

We explore locked-in situations in relation to two aspects of mental health, indicated as depressive symptoms and functional somatic symptoms.

As regards depressive symptoms, there is a large body of research showing their associations with various work environmental factors (19). Feeling locked-in was not among the reviewed factors, but the evidence of correlations between depression and situations that could mimic being locked-in – such as poor possibilities for control as well as for development – gives reason to assume a similar association. The findings of the existing studies (4, 10) are in line with this assumption.

As regards the other mental health outcome of our study, named ‘functional somatic symptoms’, such as headaches, nausea/upset stomach, breathing trouble, dizziness, and backaches (see 20), Mayou and Farmer point out in their review (21) dissatisfaction with work as one explanation for the symptoms. General underlying mechanisms could be that bodily perceptions are interpreted through knowledge, beliefs, personality and mental state. Also, there is a risk of common method bias when studying the associations between functional somatic symptoms and feeling locked-in, but the risk is less evident than in the case of depressive symptoms.

Employing two different indicators of mental health, our aim in the present longitudinal study is to test the following questions/hypotheses:

1. Is feeling locked-in associated with low-level mental health (cross-sectional association hypothesis)?
2. Is feeling locked-in at age 30 associated with low-level mental health during the life course from age 16 to age 30 (selection hypothesis)?
3. Is feeling locked-in both at age 30 and at age 43 associated with poor mental health, compared to feeling locked-in at one point of time only or not at all (exposure hypothesis I)?

4. Is the shift from non-locked-in to locked-in status between age 30 and age 42 associated with declining mental health, and is the opposite shift associated with improving mental health (exposure hypothesis II)?
5. Does this association (question 4) differ by gender and socioeconomic status? Are the gendered labour market and career patterns reflected in gender differences in the 'locked-in stress' (gender hypothesis)? Correspondingly, do those with higher education experience higher 'locked-in stress' while facing a hierarchy of possible work posts, compared to manual workers whose career expectations may be different and less stressing (occupational class hypothesis).

Methods

The study sample was derived from the Northern Swedish Cohort, which has been followed by surveys at age 16, 18, 21, 30 and 43 across the years 1981–2008 (22). One unique characteristic of the study is the exceptionally high response rate (after 27 years still 94.3%, n=1001).

Surveys of the Northern Swedish Cohort contained a set of questions about current labour market status and occupation, which ended in the question 'Are you doing what you preferably would like to do?' with response options yes or no. We defined the respondent as being in locked-in situation, when the reply to this question was 'no', and he/she reported having a permanent job contract. The respondents who reported being permanently employed and replied to the question about locked-in situation, both in the survey at age 30 and in the survey at age 43, were included in this study (n=479). Based on these two measurements, the locked-in history was classified as '*never*' (not locked-in at both ages), '*early*' (locked-in at age 30 only), '*late*' (locked-in at age 43 only) and '*long*' (locked-in at both ages).

Mental health was measured with depressive and functional somatic symptoms at age 16, 21, 30 and 43. Depressive Symptoms Score (DSS) was based on six symptoms defined in DSM-5 (23), i.e. sleeplessness, poor appetite, fatigue, concentration difficulties, feeling down or sad, and feeling downhearted about the future. Functional Somatic Symptoms Score (FSS) was a score of ten symptoms: headache or migraine; other stomach ache (than heartburn, gastritis or gastric ulcer); nausea; backache, hip pain or sciatica; general tiredness; breathlessness; dizziness; overstrain; sleeping problems; and palpitations (for details of the variable construction, see 24).

Socioeconomic status (SES) at age 42 was dichotomized on the basis of white-collar/blue-collar occupation (25). Having children (yes/no, irrespective of the age and of currently living in the family) was used as indicator of the family status at age 30 and age 43.

Statistical analyses were performed in three stages. First, univariate analyses of variance, adjusting for gender, SES and family status, were used in order to assess statistical significance of differences in mental health scores by locked-in status at age 30 and at age 42. Second, analyses of variance for repeated measures of mental health at age 16, age 21 and age 30, with the dichotomous locked-in status at age 30 as between-subjects factor, were used to compare the level and the development of mental health. Third, analyses of variance for repeated measures of mental health from age 30 to age 43, with four class locked-in history, gender and SES as the between-subjects factors, were conducted to assess if changes in mental health were associated to the locked-in history (time*locked-in interaction) and if these associations depended on gender (time*locked-in*gender interaction) and SES (time*locked-in*SES interaction). The analyses were performed using IBM SPSS v25.

Results

The sample of 479 employees was slightly male-dominated ($n=265$, 55%), and 65% ($n=311$) had a white-collar and 35% ($n=168$) a blue-collar occupation. A total of 208 (44%) participants had one or more children at age 30, at age 43 corresponding figures were 399 (84%). The prevalence of locked-in situation decreased from 44% at age 30 to 27% at age 43 (Table 1). Cross-sectional analyses of mental health by locked-in situation showed significantly higher figures for the locked-in at both ages (Table 1). Locked-in*gender and locked-in*SES interactions were not significant in neither of the ages and for any of the outcomes, indicating equal effects in men and women as well as in white-collar and blue-collar employees.

[Insert Table 1 about here]

Retrospective inspection (Figure 1) showed that the level of mental health of those in a locked-in situation at age 30 had been poorer since age 16 ($p<0.001$ for both DSS and FSS). Moreover, compared to the non-locked-in, the curves of the locked-in tended to assume a steeper upward course from age 21 to age 30; the differing development of mental health by locked-in situation at age 30 was significant for FSS (time*locked-in interaction, $p=0.025$) but not for DSS ($p=0.069$).

[Insert Figure 1 about here]

Analysis of mental health by locked-in history (Figure 2) showed constantly low scores of DSS as well as FSS in the *never* group and constantly high scores in the *long* group. The *late*

group scored as high as the *long* one at age 42, and also had somewhat higher scores at age 30. In the *early* group the relatively high DSS score at age 30 dropped by age 42 to the level seen in the *never* group, while the FSS score remained unchanged. The four groups differed with respect to the average score, i.e. the level of the lines in Figure 2 ($p < 0.001$ both for DSS and for FSS). The directions of the lines, i.e. the changes in the scores, were significantly different for DSS but not for FSS (p-values for the time*group interaction 0.001 and 0.088, respectively).

[Insert Figure 2 about here]

The gender differences in the results shown in Figure 2 were non-significant (p-values of locked-in*time*gender interactions 0.342 for DSS and 0.498 for FSS), whereas the locked-in*time*SES interactions were clearly significant (p-value DSS 0.001 and for FSS 0.008), meaning that there was a difference between the white-collar and the blue-collar employees with respect to the associations between locked-in history and the development of mental health. In order to reveal the nature of this difference, the SES classes were analysed separately. As shown in Figure 3, the changes in DSS of the SES groups were about parallel in the *never* group only, while in the *long* group the changes assumed opposite directions, and in the *late* group the upward slope was steeper and in the *early* group the downward slope was less steep in the white-collar group. A similar pattern of changes was seen in corresponding analysis with FSS as the mental health outcome (Figure 4).

[Insert Figures 3 and 4 about here]

Discussion

The study among permanently employed individuals in their early middle age showed, first, that there is a cross-sectional association between locked-in situation and poor mental health; second, that those who reported feeling locked-in at age 30 tended to have poor mental health even before entry into the labour market at age 16; third, that there is a gradient in the level of mental health in relation to the locked-in history during the life course from age 30 to age 43; fourth, that getting out of a locked-in situation is associated with improving and becoming locked-in is associated with worsening mental health; fifth, that these associations are gender-independent; and sixth, that the worsening is more pronounced and the improvement less pronounced in white-collar employees.

As regards the first finding, the study confirmed the hypothesis and also was in line with earlier knowledge (10, 14) of the association between feeling locked-in and poor mental health. It is noteworthy that the magnitude of the differences is quite uniform: irrespective of the age and the outcome, the scores of the locked-in are about a third higher. Table 1 also demonstrates the ‘natural’ phenomenon that somatic symptoms tend to become more common with age.

The second finding adds a novel life-course approach to the body of research. It demonstrates the importance of prior poor mental health for getting into a locked-in situation, and similar results with DSS and FSS indicate that this is due to selection rather than due to locked-in perception as a symptom of depression (i.e. the common methods bias). The finding of relatively steeply worsened mental health among the locked-in at age 30 suggests, however, that there might be a causal association from locked-in situation to poor mental health.

In line with earlier research (4, 15), the third and the fourth finding support the interpretation of such causality. Notably, however, the higher symptom scores at age 30 of the *late* group compared to the *never* group may indicate that there is health-related selection into a locked-in situation also in early middle age.

The fifth finding does not support our hypothesis of stronger associations among men. In line with corresponding finding of the association between unemployment and health (26), the present study adds to the evidence on gender independent stressfulness of the Swedish work life.

The sixth finding of a socioeconomic difference in the effects may reveal that in blue-collar employees the prospects for getting out of their current situation are imaginary, whereas in the white-collar employees the discrepancy between being locked-in and career ambitions is more concrete. As a sensitivity test, we combined the relatively small group of lower white-collar employees (n=64) with blue-collar employees instead of upper white-collar employees. Analysis with this dichotomised occupational status variable yielded similar pattern of associations as seen in the reported results.

Locked-in is basically a theoretically constructed concept, and in order to study it empirically, the ‘latent variable’ needs to be worded into questions. Different questions have been developed. Stengård et al. (4), for instance, uses the question about *perceived employability* (‘How easy would it be for you to get another similar job without having to change residence?’) and about *workplace non-preference* (‘Is the company/workplace where you work today the place you wish to work at in the future?’) to create the measure. The question used by Furåker et al. (17) (‘In general, what do you think of your chances at present of finding another job which is equal to or better than your current job?’) also refers to employability. In the study by Canivet et al. (15), in contrast, the focus is on *non-desired occupation* (‘Is your current occupation the occupation you would like to work at in the

future’). The wording of our question (‘Are you doing what you preferably would like to do?’) is quite generic, and also the variable embraces all aspects of work life, i.e. current labour market status as an employee, current workplace or employer, job contents such as skill mismatch, over/under qualification (27), over/under employment (28), current occupation and current career status. In any case, the point is that the dissatisfied employee has not, as had been logical, quitted but is staying. The overarching question is a strength albeit there is not yet any established ‘gold standard’ in the locked-in research with which it could be validated. Plausibly, however, our question yields an indicator of the same ‘latent locked-in phenomenon’ as the indicators obtained with differential questions of earlier studies. There is clearly a reason to elaborate further the contents of the locked-in concept as well as to validate the measures.

To be permanently employed at age 30 in 1995 when – in the wake of the deep recession at the beginning of the decade – the unemployment rate continued to be high (29), is evidence of good employability, and also relatively good (mental) health. On the other hand, the tough competition in the labour market may have forced several employees to accept ‘locked-in jobs’. Nevertheless, although the proportion of those feeling locked-in was smaller in 2007, in the last year of the decade-long macroeconomic growth with remarkably lower unemployment, the associations of feeling locked-in with poor mental health were equally strong as in 1995. In the other words, the association seems to be quite context-insensitive, both in terms of the life course and in terms of the historical time as indicated by the macroeconomic fluctuations. On the other hand, the observed trends in mental health cannot be generalized to adult population, as the cohort consisted of permanent employees only; the increase in FSS also can be explained by the ageing of the cohort rather than with population level increase of these symptoms from year 1995 to 2007.

The long follow-up, associated with high response rates, is a definite strength of this study. Regarding labour market attachment, the life course from age 16 to 21 is inherently unstable, and also being locked-in, elicited as we did here, may refer to diverse situations (student, temporary employment, unemployment, military service etc.), whereas by age 30 the labour market status is commonly established (63% of the total of 1001 respondents were permanent employees and 5% were entrepreneurs). By age 43 the corresponding figures had risen to 72% and 12%. Thus, we can argue that, in addition to answering the locked-in questions with reference to a homogeneously stable contractual status, our sample represents the core of the labour force. Due to the high response rate, the sample also includes the individuals with poor mental health who tend to be overrepresented among the non-respondents. In general, in spite of being relatively small and originating from one locality, the Northern Swedish Cohort has been shown to be representative of Sweden as a whole in relation to demographics, socio-economic status and health complaints (22). Thus, the results can be considered to be valid at least in a Scandinavian context, and probably also in other Western countries with correspondingly structured labour markets.

The long follow-up time is a strength of our study. On the other hand, the participants are not randomly assigned to workplaces across a period of 13 years, but many have made transitions between workplaces and probably also between different locked-in situations. No register data was available to control for the number and the types of job contracts during the follow-up in the manner that has been applied in some studies. (e.g. 30). Characteristics of the firms (e.g. labour market sector, size) were not included in the data, which is also a limitation. Labour market attachment of the study cohort was, however, relatively uniform by virtue of including only those with permanent contract both at baseline and at follow-up. Therefore, due to the design of the study, we consider differences in labour market trajectories as a source of bias as a relatively minor issue.

Although poor health could be assumed to cause job insecurity (31) more often than leading to a locked-in situation, the present study suggests that health-related selection also could exist. This topic should be studied in more detail. Another topic requiring further research, perhaps with qualitative data, is the class hypothesis that received support in this study. Finally, 'locked-in' could be a meaningful concept among atypically employed and also among unemployed, but due to the particular contexts, particular questions and separate studies are needed. The importance of such research is increasing along with increasing polarization of the labour markets (32).

Conclusions

In line with many other studies we found that a locked-in situation is related to worse psychological health. But as a supplement to other studies we found that this relationship is particularly strong among white-collar employees. Moreover, there seems to be a selection: those with high scores on depressive or functional somatic symptom already before establishing their labour market status had a higher probability of being locked-in later in life.

As to the policy implications, the discrepancy between the individual-level wishes for a preferred and predictable work life course and the labour market level interests of flexibility of the workforce is partly unavoidable. This discrepancy, and consequent locked-in perceptions, could be reduced by means of labour legislation, collective agreements and human resource management that enable smooth transitions between workplaces and occupations. Thus, our results are relevant for labour market institutions such as Swedish Work Environment Authority that is responsible for securing a healthy work environment, also with respect to the psychosocial conditions, including improving decision authority

which is connected to reduction of locked-in situations. One way of solving locked-in problems could be to provide and financially support vocational education.

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Figure legends

Figure 1. Depressive Symptoms Score (left) and Functional Somatic Symptoms Score (right) at age 16, age 21 and age 30 by locked-in situation (yes/no) at age 30.

Figure 2. Changes of the Depressive Symptoms Score (left) and Functional Somatic Symptoms Score (right) from age 30 to age 43 according to locked-in history from age 30 to age 43.

Figure 3. Change in Depressive Symptoms Score from age 30 to age 42 according to the locked-in history from age 30 to age 43 in white-collar (left) and blue-collar (right) employees.

Figure 4. Change in Functional Somatic Symptoms Score from age 30 to age 42 according to locked-in history from age 30 to age 43 in white-collar (left) and blue-collar (right) employees.

Table 1. Means of Depressive Symptoms Score (DSS) and Functional Somatic Symptoms Score (FSS) by locked-in situation at age 30 and age 43, and statistical significance (p-value from univariate analysis of variance, adjusted for gender, socioeconomic status and family status) of the differences.

	DSS (mean)	FSS (mean)
Locked-in at age 30		
- no (n = 270)	0.32	0.29
- yes (n = 209)	0.48	0.40
p-value	<0.001	<0.001
Locked-in at age 42		
- no (n = 350)	0.35	0.34
- yes (n = 129)	0.51	0.48
p-value	<0.001	<0.001

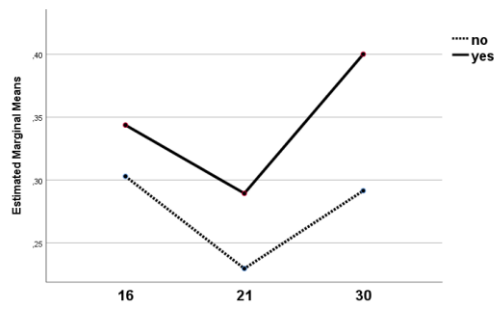
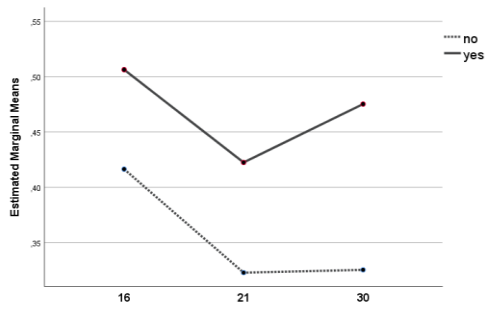


Figure 1. Depressive Symptoms Score (left) and Functional Somatic Symptoms Score (right) at age 16, age 21 and age 30 by locked-in situation (yes/no) at age 30.

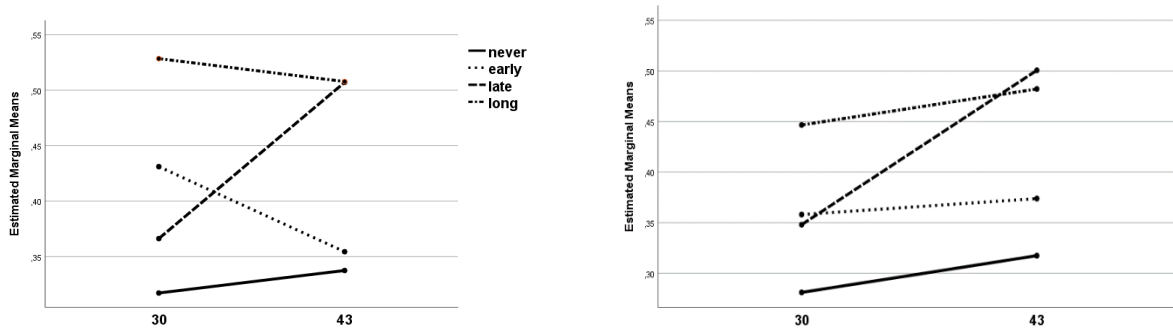


Figure 2. Changes of the Depressive Symptoms Score (left) and Functional Somatic Symptoms Score (right) from age 30 to age 43 according to locked-in history from age 30 to age 43.

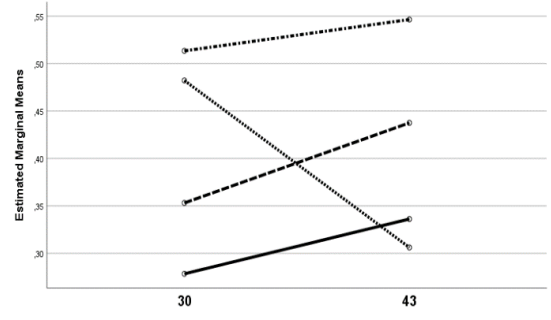
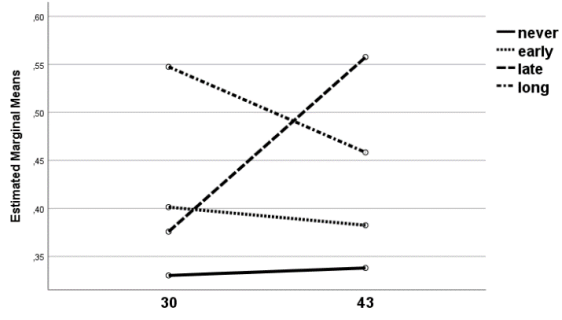


Figure 3. Change in Depressive Symptoms Score from age 30 to age 42 according to the locked-in history from age 30 to age 43 in white-collar (left) and blue-collar (right) employees.

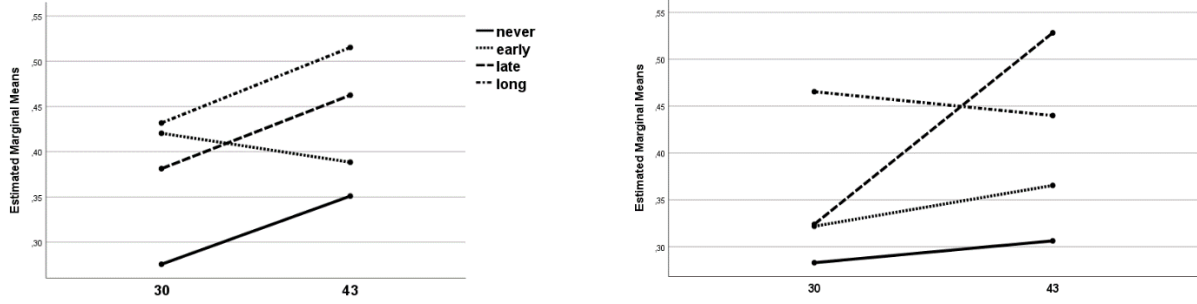


Figure 4. Change in Functional Somatic Symptoms Score from age 30 to age 42 according to locked-in history from age 30 to age 43 in white-collar (left) and blue-collar (right) employees.