

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

Pekka Virtanen (✉ pekka.j.virtanen@uta.fi)

Tampereen Yliopisto <https://orcid.org/0000-0003-4322-1033>

Anne Hammarström

Karolinska Institutet

Urban Janlert

Umea Universitet

Research article

Keywords: permanent employment, ANOVA for repeated measurements, occupational class

Posted Date: July 17th, 2020

DOI: <https://doi.org/10.21203/rs.3.rs-19947/v2>

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Version of Record: A version of this preprint was published at Journal of Occupational & Environmental Medicine on March 17th, 2021. See the published version at

<https://doi.org/10.1097/JOM.0000000000002190>.

Abstract

Background. Rapidly changing industrial structures evidently increase individuals' perceptions of not being in the preferred job, and also being 'locked' in the current post. The research on longitudinal associations of such locked-in situations with mental health is still scant, and there are controversial findings. The present study explored five hypotheses about mental health as a precedent and an outcome of different locked-in situations among permanently employed individuals.

Methods. Survey data on depressive and functional somatic symptoms from age 16 to 43 and on locked-in situations (permanently employed in non-preferred job) at age 30 and age 43 were collected from 479 participants of the Northern Swedish Cohort Study. 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 42 only) and '*long*' (locked-in at both ages). Analysis of variance for repeated measures was used to compare the changes in mental health of the four subcohorts defined by the locked-in history.

Results. Earlier evidence on the cross-sectional association between feeling locked-in and having poor mental health was confirmed. Longitudinal analyses revealed that those with poor baseline mental health at age 16 tend to get into a locked-in situation in the early middle age, that getting out of a locked-in situation in is associated with improving and getting into a locked-in situation is associated with worsening mental health, and that the worsening is more pronounced and the improvement less pronounced in white-collar than in blue-collar employees.

Conclusions. Given that there are causal associations between locked-in situation and poor mental health, the findings clarify their bidirectional nature, as well as the importance of common methods bias and social class in studying these associations. With respect to labour policy, 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.

Background

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 status 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), but the body of research on its associations with health is still small and the results partly controversial. In particular, more specific studies have to be performed 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

may even be a symptom of depression. In the other words, there is a risk of ‘common method bias’ in studying the associations between mental health and locked-in perceptions.

We explore locked-in situations among permanent employees during early middle age (from age 30 to age 42) 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 (18). 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 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 outcome of our study, named ‘functional somatic symptoms’, such as headaches, nausea/upset stomach, breathing trouble, dizziness, and backaches (see 19), Mayou and Farmer point out in their review (20) 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.

Methods

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 42 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).

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 (21). One unique characteristic of the study is the exceptionally high response rate (after 27 years still 94.3%, n=1001).

The respondents who reported being permanently employed and replied to the question about locked-in situation (see below), both in the survey at age 30 and in the survey at age 43, were included in this study (n=479). Both surveys 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 option yes or no. The response 'no' was interpreted as being in locked-in situation. 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 42 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 (22), 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 23).

Socioeconomic status (SES) at age 42 was dichotomized on the basis of white-collar/blue-collar occupation (24).

Analysis of variance for repeated measures was used to compare the changes in mental health of the four subcohorts defined by the locked-in history. 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. 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).

Table 1. Means of Depressive Symptoms Score (DSS) and Functional Somatic Symptoms Score (FSS) and statistical significance (ANOVA) of the difference by locked-in situation at age 30 and age 43.

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

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 (ANOVA for repeated measures, $p < 0.001$ 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 (ANOVA for repeated measures, time*locked-in interaction, $p = 0.025$) but not for DSS ($p = 0.069$).

Analysis of mental health by locked-in history (Figure 2) showed constantly low scores 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).

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).

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 (25), 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.

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, use 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 (employer, job contents), current occupation and current career status. The overarching question is a strength; on the other hand it gives us reason to recommend that the contents of the locked-in concept as well as the questions should be elaborated further.

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 (26), 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.

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, 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 (21).

Although poor health could be assumed to cause job insecurity (27) 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.

Conclusions

To sum up: 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.

List Of Abbreviations

DSS: Depression Symptoms Score

FSS: Functional Somatic Symptom Score

SES: Socioeconomic Status

Declarations

Ethical approval and consent to participate

Ethical approval for the Northern Swedish Cohort study has been obtained from the Regional Ethical Review Board in Umeå. Written consent has not been requested from the Board because, according to Swedish law (Swedish Ethical Review Act 2003; 460, §17), there is no requirement of written consent in a questionnaire study. The respondent is regarded as giving written consent when answering the questionnaire. Participants were/are able to opt out at any time simply by not completing any wave(s) of the survey.

Consent for publication: not applicable

Availability of data: The datasets analysed during the current study are available from the principal investigator (ann.hammarstrom@ki.se) on reasonable request.

Competing interests: The authors declare that they have no competing interests.

Funding: This work was supported by the Swedish Research Council Formas under grant [259-2012-37]; the Swedish Research Council for Health, Working Life and Welfare under grant [2011-0445]; and the Cutting Edge Medical Research granted by the County Council of Västerbotten under grant [VLL-355661].

The funding body had no role in the design of the study and collection, analysis, and interpretation of data and in writing the manuscript.

Authors' contributions: PV analyzed the data and was a major contributor in writing the manuscript. UJ and AH contributed in designing the study and writing. All authors read and approved the final manuscript.

Acknowledgements: None.

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Figures

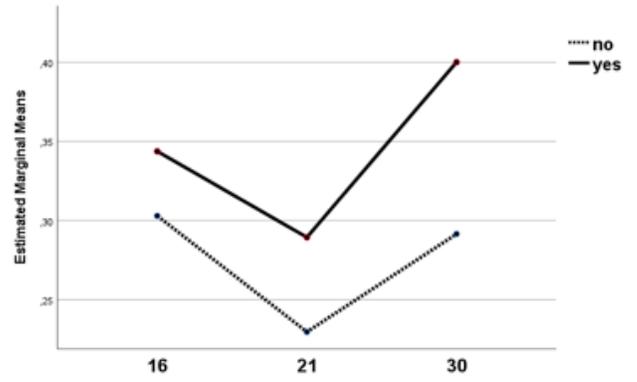
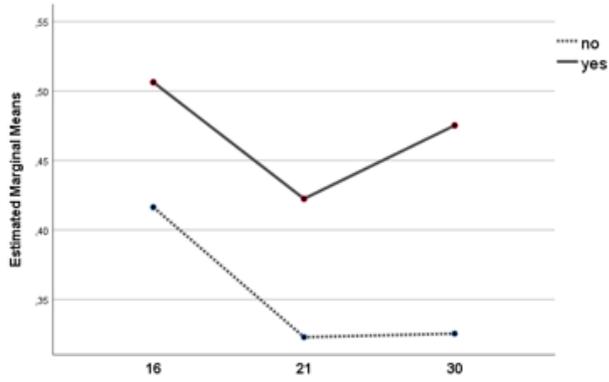


Figure 1

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.

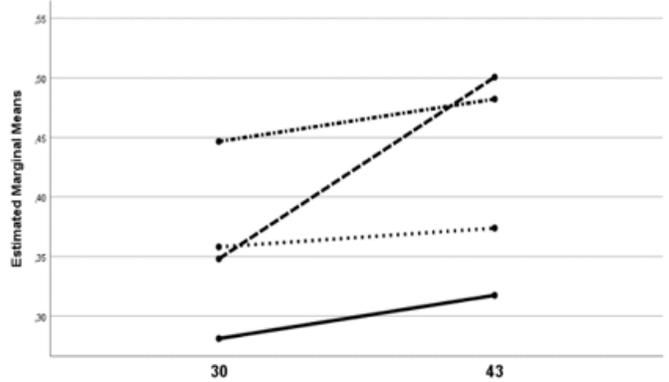
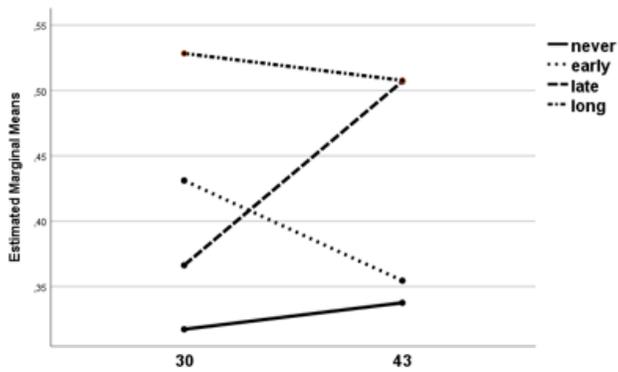


Figure 2

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.

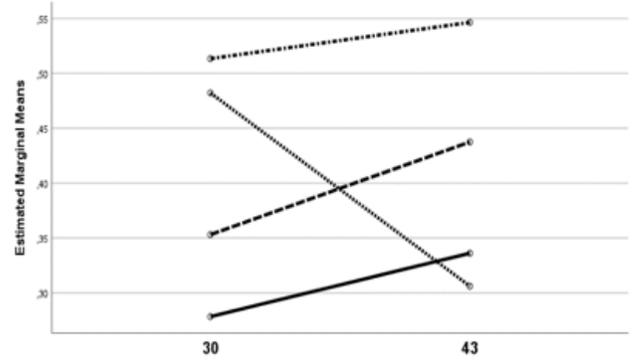
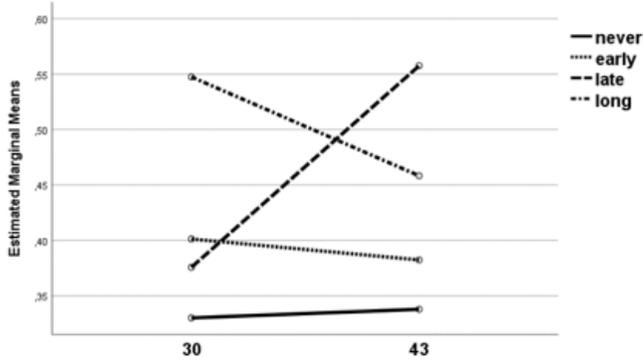


Figure 3

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.

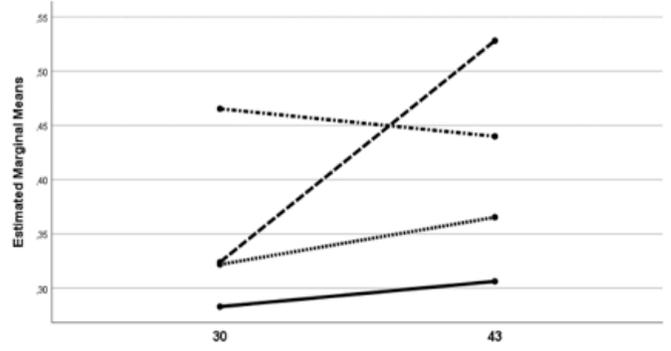
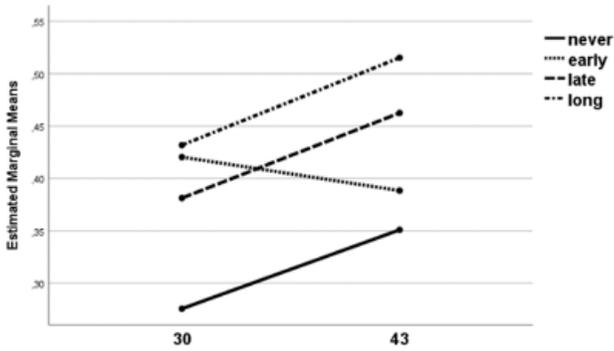


Figure 4

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.