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Title	Factors associated with disability benefits claim duration among Canadian workers: a retrospective cohort study
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Reviewer 1	Dr. Ann Del Bianco PhD
Institution	Occupational Cancer Research Centre; Faculty of Environmental Studies, York University, Toronto, Ont.
General comments (author response in bold)	<p>1. I found the title of this manuscript somewhat misleading since the vast majority of claims are from Quebec. In a study examining Canadian workers, I would expect to see data reflecting all provinces rather than just Quebec compared with "other" provinces accounting for only 16.5% of all STD (short term disability) claims and 24.8% of all LTD (long term disability) claims of the sample. For this reason, and given that there are dissimilarities in the legal systems in Quebec compared with other provinces which may impact disability claim duration, I would recommend the title of the study be revised and analysis rerun based solely on Quebec disability insurance claimant data from SSQ Financial Group. Alternatively, if a Canadian perspective is the aim, I would recommend possibly pooling the SSQ Financial Group data with STD and LTD claims from Sun Life Financial Canada (assuming there is access to the same type of data for workers with other clinical conditions). Sun Life Financial Canada data appeared to be more representative of Canada as a whole, at least for STD and LTD claims amongst depressed workers.</p> <p><b>Although we appreciate the reviewer's sentiment, we disagree that the title is misleading. While it is true that the majority of our study sample is from Quebec, it is important to note that we have, in absolute terms, a substantial number of non-Quebec claims that contributed to our models (11,659 in the STD model, and 5,505 claims in the LTD model). Moreover, an important aim of our study was to confirm (or refute) the associations we found in our analysis of claims data from Sun Life Financial, which showed longer STD claim duration, and shorter LTD claim duration, among depressed workers in Quebec vs. Ontario (over 2/3rd of Sun Life's claims were from Ontario and Quebec).<sup>1</sup> Our analysis of SSQ claims data confirmed both of these associations, which gives us further confidence in these results, and provides a basis for future research to explore why claim duration is different based on province of residence. Unfortunately, we do not have approval from Sun Life Financial to pool their data with SSQ's data.</b></p> <p>2. Page 2: Line 20: notes that nine variables were explored page 7 (subheading administrative variables) and Table 1 present 10 variables.</p> <p><b>Table 1 presents 10 variables that we initially wanted to include in our model, but claimants' province of residence and the office at which the claims were received were highly correlated. In cases of multicollinearity, our choice of variables was guided by discussions with content experts on our research team and the administrative team at SSQ, Life Insurance Company Inc. We have added more details to the manuscript, as follows:</b></p> <p><b>This situation arose only once: claimants' province of residence and the office at which the claims were received were highly correlated. The administrative team at SSQ advised that they were more interested in province of residence, due to the potential influence of provincial differences in healthcare services and legislature affecting claims. Accordingly, we removed the claim office variable from our models, thus leaving us with nine variables.</b></p> <p>3. Page 4: Lines 14 &amp; 16: notes "more females (14.9%) reported having a disability than males (12.5%)" –a reference is needed is this based on the table provided in reference 4? If so, do you mean 55% of females and 45% of males (based on all global severity classes)?</p> <p><b>These figures are from Table 2 in Reference #3, and we have now added this reference.</b></p> <p>4. Page 4: Line 40: Provide a line or two or some examples of disabling injuries or illnesses that are not covered by compensation boards that would qualify for coverage under private, for profit, providers. Also, it may be worthwhile to mention that STD and LTD plans included in this study are only available as group benefit plans.</p> <p><b>We have added the following statement noting that the results may not be generalizable: In addition, our results may not be generalizable to individuals who present with work-related disability, as those claims would be submitted to provincial compensation boards.</b></p> <p><b>We have added/modified the subsections as requested. Under the Setting subsection, we have provided some information about SSQ, Life Insurance Company Inc, as follows:</b></p> <p><b>SSQ, Life Insurance Company Inc. (hereafter referred to as SSQ) is the parent company of SSQ Financial Group and comprises three affiliates – SSQ General Insurance Company Inc., SSQ Insurance Company Inc., and SSQ Realty Inc. SSQ Financial Group offers a range of financial products and services across Canada, including, but not limited to, group insurance. Traditional group coverages offered by SSQ Financial Group include health insurance, prescription drug insurance, disability insurance, compassion insurance, life insurance, dental care insurance, health spending account, and travel insurance. In addition to offering standard STD and LTD benefit plans, SSQ offers "additional" STD and LTD plans, which may be paid simultaneously or subsequently to</b></p>

the standard plans. The “additional” plans differ from the standard plans with respect to several factors, including financial, e.g. lower or greater portion of pre-disability salary paid, and administrative, e.g. shorter or longer duration to change in disability definition date.

5. Page 5: Line 8: consider removing “i.e. the change of definition period” – it does not provide clarity.

**We have removed the quoted section as requested.**

6. Page 6 – Lines 49-56 are contradictory. The first sentence states that only one type of benefit plan was considered, STD and/or LTD (should be just “or”). Further, the following sentence notes that if both STD and LTD benefits were received they were counted twice in the analyses suggesting that data was double counted. Please revise and elaborate on the methods. Some of the confusion may be arising because the word “type” is being used in one instance to refer to STD vs LTD and in another instance to describe “standard” or “additional”.

**The use of “and/or” is appropriate, since there could have been claimants who received only STD benefits, only LTD benefits, or both STD and LTD benefits. We have revised this section as follows:**

**For our analyses, we considered claimants who received only STD benefits, only LTD benefits, or both STD and LTD benefits for the same disability from SSQ. If a claimant received both STD and LTD benefits for the same disability, so long as each plan was only of one type, i.e. either standard or “additional,” that claimant contributed twice to our analyses – once in the STD model, and once in the LTD model.**

**The word “type” is used to describe standard versus additional plans exclusively.**

7. It would also be helpful to define standard vs additional plans, although some detail is provided on lines 41-46 it would be worthwhile to know why there would be a need to purchase “additional” STD or LTD plans. What specifically do the additional plans cover that standard plans do not? Who can purchase these additional plans? Is it at the discretion of the employer or do employees typically purchase them because they may feel the “standard” plans do not meet their needs?

**Additional plans counted for 0.2% and 3.8% of the total number of STD and LTD plans, respectively. Given the relatively small proportion of observations they represented, we do not believe further elaboration on the additional plans is warranted, especially for the general readership of CMAJ Open.**

8. It may be helpful to move lines 27-40 on page 7 further up into this section and elaborate when coverage is continuous from STD to LTD and when it is not and why or why not.

**We have restructured our Methods section, and feel the placement of these lines is appropriate.**

9. Page 8- Lines 34-48 –in two different instances it is noted that variables were removed because they were deemed of lesser importance, please provide some rationale on what this was based on.

**We have added more details to the manuscript, as follows:**

**This situation arose only once: claimants’ province of residence and the office at which the claims were received were highly correlated. The administrative team at SSQ advised that they were more interested in province of residence, due to the potential influence of provincial differences in healthcare services and legislature affecting claims. Accordingly, we removed the claim office variable from our models, thus leaving us with nine variables.**

10. Page 9- Line 39 –to be consistent with benefits duration displayed in Figure 2, report LTD by days: 180 days, 365 days (one year) and 548 days (two and a half years).

**We have revised this line accordingly, as follows:**

**Therefore, when an interaction was significant, we calculated the hazard ratios (HRs) at different time-points, as follows: STD: 30 and 90 days; LTD: 180 days, 365 days (1 year), and 548 days (2.5 years); if the HRs were very similar, i.e. did not differ by  $\geq 0.20$  across the time-points, we did not consider the proportional hazards assumption to be violated.**

11. Page 10 Line 13 and Table 2 (page 21): - Describe or provide a list of what is included under “psychological disorders” and “other clinical conditions”. Do psychological disorders also include depression?

**We have provided the list of five most common conditions that fall under each of the three broad categories as Appendix 2. Depression was the most common psychological disorder.**

12. Page 10 Line 20 - “we qualitatively compared the HRs across the subgroups...” –use a better way to describe the process used so as not to inadvertently suggest that qualitative methods were utilized.

**We have removed the word “qualitatively.”**

13. A) Page 13 line 24 after “for nonpsychological illnesses” consider adding “such as for claimants with musculoskeletal disease and other illnesses”

B) Same recommendation on Page 14 line 44

**We have revised the text as suggested.**

14. Page 14 – Line 37 -reference 8 is appearing as a footnote rather than a reference in brackets.

**We have fixed this reference.**

15. Page 15 Line 20 -Please provide a little bit more information about the two year elimination period and how some of the data may have been impacted.

**The elimination period is the period of time between the onset of a disability, and the time a claimant is eligible for benefits. We have discussed the elimination period in the in the Explanation and comparison with other studies subsection, as well as the Strengths and Limitations subsection, as follows:**

**Union members’ disability insurance contracts (LTD only) include elimination periods—the period of time between disability onset and receipt of benefit payments—which could influence claim duration. In our sample, the LTD contracts of nearly 15% claimants included a two-year elimination period. SSQ was not involved in these claim for the first two years, and efforts of the insurer to facilitate return to work are substantially decreased because of the extended length of absence. Second, our primary outcome, i.e. disability claim duration, underestimates total disability duration, as benefits start date may not coincide with disability start date, especially among claimants who qualify for LTD benefits, but have to wait (elimination period) before receiving payments.**

16. Page 15 Line 25- “...was not involved in these claims” should be plural not singular.

**We disagree. SSQ refers to a single company, and the use of the word “was” (versus “were”) is appropriate.**

17. Consider replacing lines 32-34 “All factors...” with a sentence or two referring specifically to the factors.

**We have revised the text, as follows:**

**Further, claimants’ age, gender, job demands, presence of comorbidity, attendance at an IME, receipt of rehabilitation therapy, and time to claim approval factors were consistently predictive of benefits duration, irrespective of clinical condition.**

18. Consider moving lines 17-20 “Our results highlight an urgent need for...” under the section “Conclusion and future directions”

**We disagree, as we would like to keep the last subsection (which has been retitled Conclusions and implications for practice and future research) general.**

19. It may be worthwhile to highlight that as the study results suggest, while there are modifiable factors that appear to be at play with disability claim duration such as time to claim approval there are also factors that are not necessarily modifiable such as age, being female, and the presence of comorbidity. Perhaps future studies which aim to better understand both of these types of factors are equally important.

**We have revised the manuscript as follows:**

**Modifiable factors, such as time to claim approval, are subject to interventions that may increase or decrease their frequency. Non-modifiable risk factors could allow identification of claims at high risk of prolonged recovery who might then be targeted for interventions, like psychotherapy, for which preliminary evidence suggests possible benefit.**

20. Line 18 -Was there an anticipated direction for sedentary job demands?

**The anticipated directions (now provided in Appendix 1) for job demands were relative to sedentary job demands. For instance, we hypothesized that, when compared to sedentary job demands, heavy job demands would be associated with slower claim closure.**

21. Lines 21 & 26 For the variables “province” and “office” be consistent when presenting the variable and then the relationship in brackets as was done with other variables. Suggested change: Quebec for STD: (), Quebec for LTD (+).

**We have revised the text, as suggested.**

22. Lines 10-13 – Consider listing predictors in the same order as presented in Table 1, more specifically, older age, female (versus males), and then higher salary. A notation should be provided about “office” (as listed in Table 1)

**We have revised the text, as suggested.**

23. Disability claim duration may not necessarily be synonymous with return to work or recovery – especially if or when decision makers have different views or goals it appears to be suggested on page2, line 54, page 5 lines 28-33 and again on page 15 lines 34-37 and page 16 lines 35-39 that it is. Please provide references that can support this or consider revising. Literature provided by the Institute for Work and Health (<http://www.iwh.on.ca/>) may be useful in helping to reshape this

	<p>argument.</p> <p><b>We appreciate and agree with the reviewer, and point the reviewer to our newly restructured Strengths and Limitations subsection in which we indicate the following:</b></p> <p><b>... our primary outcome, i.e. disability claim duration, underestimates total disability duration, as benefits start date may not coincide with disability start date, especially among claimants who qualify for LTD benefits, but have to wait (elimination period) before receiving payments. Further, claim closure is a surrogate for patient-important outcomes, such as functional recovery and sustained return to work.</b></p> <p>24. Relatedly, #24 and #25 It would be worthwhile to explain the approval process for STD and LTD claims by private, for-profit, insurance companies such as SSQ under the Methods section and to also explain how it is determined when these STD and LTD claims are to be closed.</p> <p>25. Relatedly, #24 and #25 It would be worthwhile to explain the approval process for STD and LTD claims by private, for-profit, insurance companies such as SSQ under the Methods section and to also explain how it is determined when these STD and LTD claims are to be closed.</p> <p><b>We have added the following text to the manuscript:</b></p> <p><b>During the period of disability, insurance companies continually evaluate whether claimant continues to meet the contractual definition of disability. Services are offered by the insurers to the claimant to remediate the disability condition and facilitate return to work. The company monitors claimants' medical conditions, and, should they improve to the point where claimants no longer meet the definition of disability, payments are terminated.</b></p> <p>26. "SSQ" is predominately used throughout the manuscript however there are some instances when the data is referred to as "SSQ Financial" and "SSQ, Life Insurance Company Inc." (page 5) please revise.</p> <p><b>In our newly constructed Setting subsection, we note that SSQ, Life Insurance Company Inc. is referred to as SSQ throughout the report.</b></p> <p>27. Tables 15 describe associations by slower and faster claim closures however there are instances when these are also referred to as longer claim duration and shorter claim duration respectively. Although these are saying the same thing, consider describing the associations either one way or the other. For instance, Interpretation page 13, line 14 consider changing "longer claim duration" to slower claim closure and on page 13, line 26 consider changing "shorter claim duration" to faster claim closure or alternatively consider revising descriptions under the tables and in other places throughout the manuscript.</p> <p><b>Given that our outcomes were claim duration, we have revised the text to refer to the results as "longer" or "shorter" claim duration.</b></p>
<b>Reviewer 2</b>	Dr. Nicholas Desy MDCM BSc
Institution	University of Calgary, Calgary, Alta.
General comments (author response in bold)	<p>1. The reference citations should be superscript according to the journal's criteria [ED NOTE: Please ignore. If your manuscript is accepted for publication, references will be formatted as part of the copyedit process].</p> <p><b>We have deferred to the Editor regarding this request.</b></p> <p>2. It would be helpful to have the most common diagnoses in each of the 3 categories: psychological disorders, musculoskeletal diseases and "other illnesses" as it would be helpful for the reader to understand what are the more common reasons for disability claims. This could even be in a table format as on appendix.</p> <p><b>We have now provided the list of five most common conditions that fall under each of the three broad categories as Appendix 2.</b></p>