Employee absenteeism measures reflecting current work practices may be instrumental in a re-evaluation of the relationship between psychological distress/mental health and absenteeism

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Abstract

Absenteeism rates are the cornerstone metrics guiding corporate policy for health care investment in employees. However, traditional absenteeism measures do not reflect the contemporary workplace milieu. It is accepted practice that employees work evenings or weekends to makeup time. Using a hours-based absenteeism measure, that accounts for time made-up as well as time lost, this paper evaluates the impact of psychological distress on employee absenteeism.

Psychological distress and absenteeism data were collected from 54,264 full-time employees. Consistent with traditional approaches, employees indicated how many days they were absent. Hours based absenteeism was formulated from the ratio of how many hours the employees worked and how many hours were they expected to work in the past seven-days.

Concordant with previous concinnous evidence, traditional absenteeism computation indicated that elevated psychological distress is associated with increasing absenteeism. Using the hours-based method psychological distress did not significantly influence absenteeism.

Traditional calculations of absenteeism do not reflect the current work practices of the majority of employees. Employees with psychological distress may take time off work but it appears that they make up for lost time possibly to stay up to speed with task driven occupations and avoid performance review.
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Introduction

The consequences of ill health on employee productivity is of global interest to employers, corporate and government entities, health care purchasers and providers, researchers and clinicians. The most common dimensions of work productivity include absenteeism, presenteeism (not working at capacity while at work), workplace accidents, employee attrition, workers insurance claims and litigation. Due to the relative ease of measurement, absenteeism is the primary employee productivity metric providing the impetus for business relevant health care purchasing.

Self-reported absence, human resource records, insurance records and government databases have all been interrogated to obtain absenteeism data related to ill health. These absenteeism surrogates assume that absenteeism is artificially bounded by no absenteeism (0%) and complete absenteeism (100%). In the modern workforce milieu, it is widely recognized that many employees work hours beyond those expected, with an estimated 22% of the global workforce working more than 48-hours per week (International Labour Office, 2007). Working extended hours to achieve time dependent tasks is not a new concept. Thus, absenteeism is not bounded at 0% (no absenteeism). Being present at work longer than the employer expects may be conceptually described as negative absenteeism. In the health and productivity literature there is no measure of, or definitional term, for working hours beyond those expected by the employer. As negative absenteeism is an oxymoron, the term 'extensionism' is applied in this paper with the operational definition: extending hours worked beyond those expected by the employer to compensate for task demands or reduced productivity. Combining absenteeism with extensionism has the potential to provide a superior reflection of contemporary work practices and improve our understanding of how working hours interacts with health. Calculating absenteeism as a ratio of hours actually worked to hours expected to work (in essence a combination of absenteeism with extensionism) was initially suggested by Kessler *et al.* (2003a).

Mental disorders are a leading cause of disability being linked with substantial increased absenteeism from work (reviewed in Wang *et al.*, 2003; Simon, 2003; Sanderson and Andrews, 2006; Dewa *et al.*, 2007). Current data indicates that depression alone produces a \$33 billion loss to the US economy in absenteeism and in the UK £8 billion (Greenberg *et al.*, 1996; Thomas and Morris, 2003). Historically ingrained instruments for quantifying absenteeism only record days and part days absent from work,

they do not probe the converse possibility of working extra hours or days to make up lost time or to achieve work related tasks on schedule (Kessler *et al.*, 2003a). Data collected from 54,264 full-time employees that completed a World Health Organization (WHO) Health and Work Performance Questionnaire (HPQ) (Kessler *et al.*, 2003a; Kessler *et al.*, 2004) is analysed with a view to evaluating the impact that mental health symptoms have on employee absenteeism using (1) the traditional method of recording days and part days absent from work and (2) the proposed method that combines absenteeism and extensionism.

Methods

The data presented in this report were collected as part of a larger study namely the Work Outcomes Research Cost-benefit (WORC) project. The WORC project is a naturalistic study designed to investigate the return on investment, from an employer's perspective, for early detection of depression and facilitating help-seeking behaviours for the employees' symptoms. Detailed information on the WORC project methods can be located at <http://www.qcmhr.uq.edu.au/worc/methodology.htm>. This paper presents the results and analysis of the initial HPQ used to identify employees at risk of psychological distress.

Recruitment

There was essentially a two-phase recruitment leading employees to answer the HPQ. The first phase was to recruit large employers (more than 1000 employees); the second was to encourage employees to answer the survey. Two hundred and one large government and private sector employers distributed across Australia were invited to participate in the WORC project. Fifty-eight employers agreed to participate in the study.

HPQ surveys were circulated to employees of the participating organizations using either paper-based or web-based methods depending on company specific logistical considerations (surveys distributed between October 2004 and October 2006). Each survey was accompanied by a letter stating that the survey was a general health and emotional well-being survey. To emphasize only the mental health component may alter response rates and the reporting of psychological symptoms particularly in men (Sigmon *et al.*, 1997; Stanton *et al.*, 1991). Employees were encouraged to answer surveys by at least two reminders in the one-month survey period for each company. Only employees over the age of 18-years were invited to participate. Participation in the survey was

voluntary and confidential. The University of Queensland Human Research Ethics Committee approved the study protocol.

Survey contents

The HPQ was designed to evaluate employee productivity for chronic and acute physical and mental health conditions (Kessler *et al.*, 2003a; Kessler *et al.*, 2004). Broadly, it contains three sections: (1) evaluation of the presence or absence of health conditions; (2) occupational characteristics; (3) demographics. Further information on the HPQ can be located at <http://www.hcp.med.harvard.edu/hpq/>.

Embedded in the HPQ is the Kessler 6 (K6), a six-item scale of psychological distress with excellent internal consistency, reliability and strong discrimination between community mental health cases and non-cases (Kessler *et al.*, 2002; Furukawa *et al.*, 2003; Kessler *et al.*, 2003b; Cairney *et al.*, 2007). Each of the six items on the K6 is rated by the respondent on a five-point scale from 'none of the time' (value = 0) to 'all of the time' (value = 4) (Furukawa *et al.*, 2003). The K6 is scored by the summation of the response values thus the range is 0 to 24. Calibration studies indicate that a score of 13 to 24 represents high psychological distress, 8–12 moderate psychological distress and, 0–7 low psychological distress (Kessler *et al.*, 2003b). As mental health symptom severity occurs on a continuum and employee performance is likely related to symptom severity (Souetre *et al.*, 1997) to further elucidate the effects of psychological distress on absenteeism, the K6 scores were subdivided into six equal categories 0–3, 4–7, 8–12, 13–16, 17–20, 21–23. The maximum score on the K6 is 24. Due to the design of the HPQ, respondents with answer bias that record a response 'not at all' to physical health symptom questions continue to the K6 questions and answer the maximum score 'all of the time' on the K6. Therefore, the K6 = 24 group consists of those that have severe psychological distress and those that do not read the questions. As it is not possible to guarantee that all answer bias respondents have been removed from the sample, instances where the K6 = 24 have been removed from analyses (437 K6 = 24 records removed). Therefore, we present absence rates for K6 scores of 0 to 23.

Absenteeism

The HPQ asks a number of questions about hours and days missed from work. The first question probes employees about the hours they actually worked in the past seven-days (h_a). The second question asks employees to

report how many hours their employer expects them to work in a typical seven-day period (h_e). Percent absenteeism (A) is calculated by the formula

$$A = \frac{h_e - h_a}{h_e} \times 100.$$

Thus, positive percentages indicate absenteeism and negative percentages reflect extensionism.

The following HPQ questions ask respondents to add up all the days in the past 28-days when they, (1) missed entire workdays due to physical or mental health problems, (2) missed entire workday for other reasons (vacation, etc.), (3) missed part of a workday due to physical or mental health problems and, (4) missed part of a workday for other reasons (vacation, etc.). These questions are of the type typically asked by previous studies to establish absenteeism rates for mental disorders. Consistent with previous studies part days off are assumed to be half a day (Scott *et al.*, 2006). Total number of days absent is the sum of all four questions.

Statistical analyses

Records where the number of days absent from work in the last 28-days was greater than 28- were removed ($N = 108$). The total number of days absent from work distribution was highly skewed (3.1) and kurtosed (13.5). Data was trimmed at the upper 95th percentile (≥ 10 -days absent in the last 28-day period) decreasing the skewness and kurtosis to acceptable levels (1.5 and 1.9, respectively). Similarly the percent absenteeism data from the ratio of hours actually worked to hours expected to work was highly skewed (-8.4) and kurtosed (164.7). Data was trimmed at the upper and lower 95th percentiles (35% and -84% , respectively) resulting in acceptable skewness and kurtosis values (-1.1 and 1.5 , respectively). Mean differences were tested using one-way Analysis of Variance (ANOVA) with the dependent variables being (1) number of days off in the past 28-days and (2) percent absenteeism in the last seven-days. Independent variables included in the model were psychological distress (K6 score), age, marital status, education level achieved, job category and, number of physical health conditions. To control for physical comorbidity effects in the regressions, the total number of physical health conditions reported was used as a variable. For models run that were not separated by gender, gender was included as an independent variable. Where there was a significant main effect *post hoc* comparisons were made using least squared difference. Statistical analyses were performed using SPSS version 15.0 for Windows.

Results

The mean response rate to the HPQ survey was 24.7%, ranging from 4% to 46% in different employers. In total 25,607 male and 34,859 female full-time employees responded to the survey (total of 60,556). The response rate is typical of the response rates to other employee administered health questionnaires administered in multiple large organizations (Wang *et al.*, 2002; Wang *et al.*, 2007). To determine if response rate was related to organizational psychological distress prevalence, a linear regression was performed between organizations ($N=58$) response rate and (1) mean K6 score and (2) the prevalence of a high K6. Response rate did not significantly ($p < 0.3$, $R^2 < 0.25$) correlate with either mean K6 or prevalence of a high K6. To evaluate whether response rate was associated with absenteeism (days absent and the percent absent) linear regressions between response rates and absenteeism were performed. Response rate did not significantly regress to either days off in the past month ($p = 0.24$, $R^2 = 0.03$) or absenteeism percent ($p = 0.48$, $R^2 = 0.1$). Thus, it does not appear that response rate is a factor contributing to prevalence or absenteeism estimates. A prior study has shown that respondents and non-respondents to a Health Risk Appraisal (HRA) survey have comparable levels of depression (Wang *et al.*, 2002). After data cleaning, described in the methods section, 54,264 records were eligible for further analysis.

Table 1 lists the characteristics of the sample population and the percentage of respondents that fall into the K6 mental health symptom categories. The mean number of hours worked in the past seven-days was 43.4-hours [standard error (SE) = 0.052]. The Australian Bureau of Statistics (ABS) 2006 find the average number of working hours for full-time Australian employees is 43.9-hours, exceptionally close to our result (Australian Bureau of Statistics, 2006).

Figure 1(a) describes the adjusted means for the number of days off in the last 28-days by the standardized K6 categories and gender. *Post hoc* analyses indicate that for both males and females the differences between all combinations of psychological distress categories are significant ($p < 0.001$). The mean absenteeism difference between low and high psychological distress (males and females combined) is 0.8 of a day per 28-days.

Figure 1(b) describes the adjusted means for percent absenteeism by standardized K6 categories and gender. Overall employees worked 10% longer than expected by their employers, i.e. 10% extensionism. In males, psychological distress was not a significant factor influencing absenteeism-extensionism. Females with moderate

Table 1 Population characteristics

	Percentage of sample		
	Male	Female	Total
<i>Sex</i>	42.4	57.6	100
<i>Age (years)</i>			
18–24	6.7	8.5	6.9
25–34	22.0	29.2	26.1
35–44	29.7	25.8	27.5
45–54	31.6	28	29.5
55–64	11.4	8.2	9.6
65+	0.6	0.3	0.4
<i>Marital status</i>			
Married or cohabiting	77.1	63.3	69.2
Separated	2.9	3.7	3.4
Divorced	3.9	8.5	6.5
Widowed	0.4	1.2	0.8
Never married	15.7	23.3	20.1
<i>Education status</i>			
<year 10	2.3	2.0	2.1
Year 10	10.2	11.4	10.9
Year 12	10.2	9.7	9.9
Some tertiary	28.4	25.4	26.7
Degree graduate	28.2	31.9	30.3
Post-graduate degree	20.7	19.6	20.1
<i>Job category</i>			
Executive	16.3	10.8	13.1
Professional	46.5	49.8	48.4
Technical support	9.4	3.6	6.1
Sales	3.5	3.2	3.3
Clerical/admin	13.2	29.8	22.7
Service occupation	4.7	2.6	3.5
Precision and crafts	2.8	–	1.2
Operator or labourer	3.6	0.4	1.8
<i>K6 standard categories</i>			
Low (0–7)	88.2	86.2	87.0
Moderate (8–12)	8.7	10.1	9.5
High (13–23)	3.1	3.7	3.5
<i>K6 new categories</i>			
0–3	66.4	63.4	64.7
4–7	21.8	22.8	22.4
8–11	7.4	8.4	8.0
12–15	2.9	3.8	3.4
16–19	1.1	1.3	1.2
20–23	0.4	0.4	0.4

psychological distress had more extensionism than either the low or high psychological distress groups.

Figure 2(a) illustrates the results from the ANOVA model for days off in the past 28-days by the K6

Figure 1 Adjusted means (SE) from ANOVA for (a) the number of days absent from work in the past 28-days and (b) percent absenteeism-extensionism. Significance (p) values are from *post hoc* least significant difference (LSD) analysis.

divided into six equal categories. Similar to the data in Figure 1(a) the number of days absent significantly (main effect $p < 0.001$) increases with increasing K6 scores until the last K6 category (scores between 20 and 23) where there is a small, but significant ($p = 0.03$) decline in absenteeism.

Figure 2(b) illustrates the adjusted mean percent extensionism rates divided into six psychological distress categories. Supporting the data from Figure 1(b) psychological distress did not significantly (main effect $p = 0.15$)

change absenteeism-extensionism in males. In females extensionism did vary significantly (main effect $p < 0.001$) by psychological distress levels. *Post hoc* statistical comparisons for females are in Table 2. As psychological distress levels increased from 0 to 15 there was a monotonic increase in extensionism. Following this, symptoms increasing from 16 to 23 is associated with a decrease in extensionism. The difference in percent absenteeism in females from no psychological distress to maximum distress is only 1.5% ($p = 0.007$) from Table 2.

Figure 2 Adjusted means (SE) for (a) the number of days absent from work in the past 28-days and (b) the percent absenteeism-extensionism in the past seven-days. In Figure 2(a) male to female and symptomatic differences are not statistically significant. In Figure 2(b), male to female and symptomatic differences are statistically significant ($p < 0.001$). For the males in Figure 2(b) percent absenteeism was not statistically different across K6 categories. While for the females percent absenteeism did vary significantly ($p < 0.001$) across K6 categories.

Table 3 presents absenteeism rates due to mood and anxiety disorders from previously published large-scale surveys. For affective disorders, the absenteeism range is 0.4 to seven-days per month, for anxiety disorders the range is 1.3 to 3.8-days per month. As the K6 primarily detects high prevalence disorders (mood and anxiety disorders), and has excellent diagnostic accuracy in the high psychological distress range, it is appropriate to compare absenteeism rates from high K6 data to those previously published for mood disorders (Kessler *et al.*, 2003b).

Computing absenteeism as days absent in the last 28-days indicates that those with high psychological distress are, on average, absent 2.6 days per month, which is consistent with previous reports (Table 3). The low to high psychological distress delta reported in this paper is 0.6 of a day per month absenteeism is also consistent with the reports in Table 3 (delta range of 0 to 4.7 for mood disorders and 0.1 to 1.5 for anxiety disorders). Therefore, consistent with the current understanding and literature, as mental health worsens, absenteeism increases when measured

Table 2 *Post hoc* ANOVA results for female employee's percent absenteeism in the past seven-days by K6 categories

K6 score		Mean difference (I–J)		95% confidence interval	
I	J	Difference	p Value	Upper	Lower
0–3	4–7	0.87	0.001	0.36	1.37
	8–11	1.45	0.000	0.68	2.21
	12–15	1.51	0.007	0.41	2.61
	16–19	–1.24	0.201	–3.15	0.66
	20–23	–3.44	0.045	–6.80	–0.08
4–7	8–11	0.58	0.175	–0.26	1.42
	12–15	0.64	0.278	–0.51	1.79
	16–19	–2.11	0.033	–4.05	–0.18
	20–23	–4.31	0.012	–7.69	–0.93
8–11	12–15	0.06	0.931	–1.23	1.35
	16–19	–2.69	0.009	–4.71	–0.67
	20–23	–4.89	0.005	–8.32	–1.47
12–15	16–19	–2.75	0.013	–4.92	–0.58
	20–23	–4.95	0.006	–8.46	–1.43
16–19	20–23	–2.20	0.262	–6.04	1.64

using techniques bounded to positive values. This is further confirmed by subdivision of the K6 into smaller symptom severity categories (Figure 2a) where a positive and approximately linear relationship exists between degree of psychological distress and number of days absent per month.

Discussion

Absenteeism is not constrained to positive values (working less than your employer expects), it can be negative (working more than your employer expects). Absenteeism measurement techniques should reflect this reality. This paper compares two methods of computing absenteeism. The first is the ubiquitous method of asking respondents to self-report how many days they were absent from work (constrained to positive values). The second is a percent absenteeism measure (not constrained to positive values) whereby 'positive' absenteeism is absenteeism and 'negative' absenteeism is termed extensionism.

Using traditional absenteeism computation, increasing levels of psychological distress was associated with increasing absenteeism rates. The levels of absenteeism rates reported in this paper are within the range of

previously published studies investigating the relationship between mental health and employee absenteeism (Table 3). In contrast to days absent data, absenteeism-extensionism quantified with the ratio method, shows that for males, psychological distress levels did not significantly change absenteeism-extensionism either when the K6 was divided into the three usual categories of low, moderate and high psychological distress or, when further subdivided into six equal categories. In female employees, with moderate psychological distress on the K6, the days absent method shows an increase in absenteeism rates while the ratio method indicates a significant increase in extensionism. The diverging directions of the two methods for computing absenteeism-extensionism, with respect to psychological distress levels in females (Figure 2), highlights that there are marked differences in the two methods for computing absenteeism. The authors posit that the unidirectional nature of traditional absenteeism artificially force a positive relationship between worsening mental health and absenteeism. In comparison a ratio method can capture additional information (working extra hours to compensate for days off or slowed pace of task completion) and is not constrained to positive values and thus more accurately represents the modern workplace employee practices.

Using a method of computing absenteeism that does not artificially constrain the data to positive values, shows that mental health symptoms produce exceptionally minimal absenteeism rates and indeed symptoms, up to some of the more severe levels, may actually increase extensionism (working longer) especially in females. Though this increase in extensionism in females is statistically significant, due to the large numbers in the study, the maximum difference in extensionism (Table 2) is only 1.5% or 0.6-hours assuming a 40-hour week. Thus, although psychological distress may increase extensionism in females the effect size is relatively small. This suggests that on average in both males and females psychological has little impact on absenteeism. However, the finding that mental health symptoms, at certain manageable levels, may increase extensionism is intuitive. It is well known that mental ill health impairs attention, concentration, memory, motivation, decision making, relations with peers, supervisors, and self-efficacy (Klerman and Weissman, 1992). Such impairments would likely slow the pace of task completion. Indeed mental disorders are associated with substantially increased presenteeism (not functioning to full capabilities at work reviewed in: Wang *et al.*, 2003; Simon, 2003; Sanderson and Andrews, 2006; Dewa *et al.*, 2007). Thus, to maintain quantitative output and avoid adverse performance review, employees

Table 3 Number of days absent per four-weeks for previous large-scale surveys. All papers applied different methods in controlling for confounders/covariates. Authors presented absenteeism in various formats (e.g. days per year). Values have been transformed into days absent in the last four-weeks

Survey	Reference	No conditions	Total population	Affective disorders	Major depressive disorder	Anxiety disorders	Generalized anxiety disorder
NCS ^{a,b}	(Kessler and Frank, 1997)	0		0.4	0.45	0.18	1.15
NCS-R	(Merikangas <i>et al.</i> , 2007)		1.5		2.1		1.3
EBMHS ^a	(Kouzis and Eaton, 1994)				3.1		
The productivity audit	(Stewart <i>et al.</i> , 2003)		0.2	0.5	0.6		
OHS ^a	(Dewa and Lin, 2000)	0.75	0.95	0.95		1.3	
Major US corporation	(Druss <i>et al.</i> , 2000)		0.25	0.76			
NEMESIS ^b	(Buist-Bouwman <i>et al.</i> , 2005)	0		2.2		1.4	
NZMHS	(Scott <i>et al.</i> , 2006)	1.9	2.3	7		3.8	
SMHWP	(Australian Bureau of Statistics, 1998)	0.9	1.7	3.5		1.8	
SMHWP ^a	(Lim <i>et al.</i> , 2000)			1.6	1.4	0.6	0.8

^aEmployees only.

^bReference values are zero, number of absent days represent a delta from zero.

Note: NCS, National Comorbidity Survey; USA. NCS-R, National Comorbidity Survey Replication, USA; EBMHS, East Baltimore Mental Health Survey, USA; OHS, Ontario Health Survey, Canada; NEMESIS, Netherlands Mental Health Survey and Incidence study; NZMHS, New Zealand Mental Health Survey; SMHWP, Survey of Mental Health and Well Being, Australia.

with mental health symptoms may work longer hours to complete the necessary tasks therefore maintaining total productivity. This is supported by previous data suggesting that mental disorders have a small impact on work disability with a much larger effect on the extra effort required to complete tasks (Dewa and Lin, 2000).

The extensionism data shows that many individuals work longer than expected hours at work presumably to achieve a positive employment outcome e.g. completion of tasks on time. However, the opportunity cost of spending more time at work may include a reduced work–life balance, increase negative work–family spill-over and increased effort–reward imbalance potentially worsening mental well-being (Stansfeld *et al.*, 1999; Spurgeon *et al.*,

1997; Franche *et al.*, 2006). One conjecture is that in the females with moderate psychological distress, extensionism to compensate for reduced performance may produce disruptions to normal life further worsening their symptoms.

Limitations and considerations

The short recall period of seven-days for hours worked has advantages and disadvantages. Advantages include ease of memory recall and therefore increased accuracy of the data than longer term estimates. Disadvantages include the possibility of ‘missing’ days off, which may be captured by a longer recall period, and therefore a

potential reduction in statistical power. In regards to this latter point, using days off in the last 28-days indicated no difference between male and female employees in terms of absenteeism. The ratio method (absenteeism-extensionism) distinguished clear intersex absenteeism differences. Therefore, the shorter recall period may actually be a more sensitive measure of health change/state than longer recall periods.

The large epidemiologic surveys discussed in this paper used detailed interview techniques to establish or refute a diagnosis of a mental health condition. This method is undoubtedly superior to the K6 used in this paper for establishing a diagnosis. Hence, the possibility exists that measurement error in this current study is a confounder. Diagnoses of a mental disorder from extended interviews are dichotomous outcomes whereas the K6 represents a symptom gradient. In reality mental health/ill health exists on a continuum from perfect health to severe symptoms and impairment. A symptom gradient measure, such as the K6, captures information affording a graduated assessment employee productivity.

The focus in this paper is on total days or hours absent, rather than those absent specifically for health problems. This is most likely the prudent approach as many employees may use sick leave and vacation days when they are unwell. Additionally employees take sick leave for reasons other than health and it is unclear in the HPQ whether they would record this leave as missing a day for health reasons or missing a day for any other reason. Some employers also consolidate benefits that bundle sickness-absence days and vacation days although this is not common in Australia. Additionally, previous studies identified that approximately 30% of full-time employees with a mental health condition do not recognize they have a mental health problem (Hilton *et al.*, 2008). These individuals would not report days off due to mental health or health problems but rather leave for other reasons which may include stress.

Validation studies report a good concordance between self-reported absenteeism and objective payroll records (Revicki *et al.*, 1994; Kessler *et al.*, 2003a). However, absenteeism measurement techniques compared (payroll versus self-reported days off) have the same limitations in that they are both bound to positive values and therefore promote a correlation. Employee self-report absenteeism typically is an underestimate of payroll records (Kessler *et al.*, 2003a). This underestimate may be a limitation of the 'gold standard' of payroll records rather than the employee estimate. Although in the development of the HPQ absenteeism questions Kessler and colleagues

suggest the use of a ratio of hours worked to those expected, their validation only concerned the numerator in the equation (hours worked) (Kessler *et al.*, 2003a). Further research is necessary to validate the ratio method for computing absenteeism.

The cross sectional nature of this study is a limitation in that the results and discussion infer that it is psychological distress that is driving absenteeism rates. However, there may be a degree of endogeneity within the data. For example, using the ratio method, it is discussed that moderate levels of psychological distress increase female's attendance at work where increased attendance may actually also be a driver for worsening mental health.

Conclusions

Using standard methods of computing absenteeism rates, data presented is concordant with previous literature in that as mental health symptoms increase absenteeism increases. However, the ratio method for computing absenteeism-extensionism, that is not constrained to positive values, shows that mental health symptoms may actually increase extensionism in females in the moderate symptom severity range. Traditional calculation of absenteeism (days or hours missed from work) may be appropriate in occupations where employees clock in and out of work (e.g. factory workers). However, they do not reflect the current work practices of the majority of employees. Full-time salaried white-collar workers are generally task and time driven and many compensate for time missed from work in order to achieve occupational goals. Many blue-collar workers (e.g. building industry) are sub-contractors and are task driven. A re-evaluation of absenteeism measurement as it applies to employee health is required to ensure the outcomes appropriately reflect the salmagundi of current work practices. Results presented have extensive implications in that previous studies on health and productivity should reconsider the applicability of their absenteeism measure. The findings presented in this paper will, in the least, stimulate debate on the quantification of absenteeism.

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Declaration of interest statement

The authors have no competing interests.

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