

## The relationship between gratitude and presenteeism among workers: a cross-sectional study

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### ABSTRACT

This study investigates the relationship between gratitude and presenteeism (working while unwell) among workers. Productivity loss due to health issues among workers is a critical problem. The largest portion of health-related costs comes from presenteeism, with mental disorders being the main contributors. Gratitude, as one of the positive psychological factors, might have a protective effect against presenteeism. This is because gratitude can reduce stress, increase support from others, improve the workplace atmosphere, and enhance self-efficacy. Therefore, we hypothesized that higher trait gratitude (individual differences in the tendency to feel gratitude) and higher frequency of gratitude expression would be associated with lower levels of presenteeism. In 2022, a cross-sectional study was conducted with workers in Tsukuba City. The outcome variable was the Single-item Presenteeism Question, which is an indicator of presenteeism. The explanatory variables included the Gratitude at Work Scale, a measure of trait gratitude in workplace, along with frequency of expressing gratitude. Multiple regression analysis was performed. The results showed that higher trait gratitude was associated with lower levels of presenteeism (standardized coefficient,  $-0.203$ ;  $p < 0.001$ ). Higher frequency of gratitude expression was associated with lower levels of presenteeism (standardized coefficient,  $-0.048$ ;  $p = 0.016$ ). The study confirmed that trait gratitude and frequency of gratitude expression were associated with presenteeism. However, it remains unclear whether gratitude directly reduces presenteeism, and further longitudinal studies are needed to explore this possibility.

Keywords: trait gratitude, gratitude expression, presenteeism

Abbreviation:

GAWS: Gratitude at Work Scale

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## INTRODUCTION

Productivity loss due to health issues among workers is a critical problem. On average, productivity loss costs have been calculated to be about 2.3 times higher than medical and pharmaceutical costs.<sup>1</sup> The global economy is estimated to lose \$1 trillion annually due to productivity declines caused by mental disorders.<sup>2</sup> In Japan, the annual productivity loss due to mental disorders is estimated at \$31.7 billion.<sup>3</sup> Worker productivity loss can be categorized into absenteeism and presenteeism.<sup>3</sup> Absenteeism refers to productivity loss due to absence from work.<sup>3</sup> Presenteeism refers to a decline in productivity while working despite being ill.<sup>4</sup> The costs incurred from presenteeism are significantly higher than those from absenteeism, making up the largest portion of health-related costs.<sup>3</sup> Presenteeism leads to performance deterioration for employees and labor loss for companies.

Causes of presenteeism include various reasons such as neck and shoulder pain, back pain, and sleep problems, with the most significant loss attributed to mental disorders.<sup>3</sup> Additionally, Aronsson and Gustafsson have already argued that work-related demands are a factor that exacerbates unhealthy conditions and increases presenteeism.<sup>4</sup> Examples of work-related demands include difficulties in securing replacement staff when taking sick leave, time pressure, insufficient resources, and income loss due to taking time off.<sup>4</sup> Work-related factors of presenteeism include the workplace environment, especially the psychological work environment and the workers' psychological states related to their jobs, highlighting the need to focus on psychological factors.<sup>5</sup> A previous study targeting workers in small- and medium-sized enterprises has revealed significant associations between presenteeism and job satisfaction, stress, work engagement, and social capital.<sup>6</sup> One of the causes of presenteeism is related to psychological factors, and improvement can be expected through interventions.<sup>4</sup> A buffering factor against workplace stress may help prevent the worsening of presenteeism, and one such factor could be gratitude. However, the relationship between presenteeism and positive psychological factors has not been sufficiently studied.

The impact of gratitude on mental health is gaining increased attention.<sup>7</sup> Gratitude is defined as "a positive emotion that arises when a person receives a benefit and recognizes that the benefit came from another person."<sup>8</sup> Depression is an important cause of mental health issues, and a negative correlation between gratitude and depression has already been demonstrated in a meta-analysis.<sup>9</sup> Although previous studies have not investigated the relationship between gratitude and presenteeism, it has been found that gratitude is associated with work engagement.<sup>10</sup> Since presenteeism and work engagement are known to have a negative relationship,<sup>11</sup> we hypothesized that higher gratitude would be associated with lower levels of presenteeism. Gratitude research has defined and operationalized three forms of gratitude: trait gratitude, state gratitude, and gratitude expression.

Trait gratitude refers to individual differences in the tendency to feel gratitude.<sup>12</sup> Previous studies have revealed that trait gratitude shows a negative correlation with depression, anxiety, and stress.<sup>13</sup> We can explain the benefits of trait gratitude using three theories. The schema hypothesis suggests that interpreting things more gratefully leads to increased overall happiness.<sup>7</sup> The coping hypothesis suggests that people with higher levels of gratitude tend to have higher optimism and hope for the future, making them more flexible in coping with stressful situations.<sup>7</sup> The broaden-and-build theory argues that positive emotions expand the range of thinking and behavior, enhance relationships, and build resources and capabilities.<sup>14</sup> Based on these theories, Alkozei et al proposed several mechanisms explaining the relationship between trait gratitude and mental health problems.<sup>15</sup> They explained that high trait gratitude enables people to interpret things more positively, broadens their capacity, and increases social support during stress, leading to improved mental health. These theories support the hypothesis that high trait gratitude may

be associated with the likelihood of mental health issues.

State gratitude refers to the amount of gratitude felt when receiving help.<sup>12</sup> Gratitude expression refers to the behavior of conveying feelings of gratitude to others.<sup>16</sup> The find-remind-and-bind theory explains the benefits of expressing gratitude, suggesting that expressing gratitude strengthens relationships with others.<sup>17</sup> High frequency of gratitude expression can improve workplace relationships and atmosphere, making it easier to receive support from others. This leads to the hypothesis that high frequency of gratitude expression may be associated with the likelihood of mental health issues.

The purpose of this study is to elucidate the relationship between trait gratitude and frequency of gratitude expression with presenteeism among workers. Therefore, in this study, we hypothesized that higher trait gratitude and higher frequency of gratitude expression would be associated with lower levels of presenteeism.

## METHODS

### *Study design and participants*

In our research, we used data from the Tsukuba Salutogenic Occupational Cohort Study conducted from January to March 2022. The descriptive statistics of the Tsukuba Salutogenic Occupational Cohort Study are available in a separate report.<sup>18</sup> We conducted an online survey on psychological distress and living conditions among 21,875 workers at a research institute in Tsukuba, Ibaraki Prefecture, Japan. This survey was cross-sectional, web-based, and self-administered. Participants were given the option to either answer anonymously for this survey only, or to provide their names and participate in follow-up surveys as well. This survey proposal was reviewed and approved by the Ethics Committee of the Institute of Medicine, University of Tsukuba (Approval #1669-5).

### *Questionnaires*

The Single-item Presenteeism Question, University of Tokyo 1-item version, was used to measure presenteeism.<sup>19</sup> Presenteeism score was measured by the Single-item Presenteeism Question. There is no cut-off point, but previous studies have tested its validity and responsiveness.<sup>6,19</sup> Respondents rated their work performance over the past four weeks, considering 100% as their performance in the absence of illness or injury. Responses were given as an integer between 1% and 100%, and the presenteeism score was calculated as  $100\% - (\text{the response value})$ . For example, a respondent who answered 70% was estimated to have a presenteeism score of 30%. It can be interpreted that the higher the presenteeism score, the worse the respondent's productivity loss is likely to be.

The Gratitude at Work Scale (GAWS) can measure trait gratitude in the workplace.<sup>10</sup> GAWS includes subscales for gratitude towards meaningful work, such as "How often do you feel grateful for the connections with people you work with or provide services to?" and gratitude towards a supportive work environment, such as "How often do you feel grateful for the support from your supervisor?" Using GAWS allows for quantifying trait gratitude and testing the hypothesis. In this study, we used the validated Japanese version.<sup>20</sup> The scale comprises 10 items, rated on a 5-point Likert scale. The total score ranges from 10 to 50. A higher GAWS score indicates greater appreciation of the workplace environment and the meaningfulness of the job.

We measured the frequency of gratitude expression by asking, "How often do you usually express gratitude to someone?" with the following response options: "Almost every day", "At least once a week", "At least once a month", "Almost never". Frequency of expressing gratitude was

similarly revised from the questionnaire used for frequency of laughing aloud.<sup>21,22</sup> Although this method of questioning has not been validated, it was developed based on existing questionnaires.

### *Statistical analysis*

We conducted a multiple regression analysis with presenteeism as the main outcome. The explanatory variables were frequency of gratitude expression and GAWS. Additionally, we included several adjustment variables: sex, age, marital status, occupation, smoking status, alcohol consumption, exercise habits, and self-rated health. The GAWS score adopted the centering score, which was calculated by subtracting the average score from the actual score. The GAWS score was treated as a continuous variable. For frequency of gratitude expression, the categories “At least once a month” and “Almost never”, which had fewer responses, were combined. Subsequently, frequency of gratitude was treated as an ordinal variable (“At least once a month” and “Almost never” was coded as 1, “At least once a week” as 2, and “Almost every day” as 3). A higher score indicates a higher frequency of expressing gratitude. Sex (reference: men), age (reference: 20–29), marital status (reference: married/having a partner), occupation (reference: clerk/administration), self-rated health (reference: poor/fair), drinking (reference: every day), smoking (reference: every day/at least once a week) and regular exercise habit (reference: no) were treated as nominal variables and analyzed using dummy variables. Additionally, an interaction term was created by multiplying the centering score of the GAWS score with the frequency of gratitude expression. Model 1 refers to the multiple regression analysis conducted without the interaction term, and Model 2 refers to the multiple regression analysis including the interaction term. The significance level was set at 0.05 (two-sided). The analysis was performed using IBM SPSS Statistics 29 (IBM).

## RESULTS

A total of 3514 respondents agreed to participate, and 2715 were included in the analysis after excluding those with missing values.

Table 1 shows the descriptive characteristics of the participants (n = 2715). Most participants were men (59.3%), aged 50 to 59 (31.0%), and married/having a partner (74.0%). The respondents included many white-collar workers, such as researchers/academics (40.8%), technicians/engineers (10.7%), and professionals (8.4%). Among the respondents, 84.6% expressed gratitude at least once a week. The mean ( $\pm$  standard deviation) presenteeism score was 21.6 ( $\pm$ 18.3).

Table 2 shows the results of the multiple regression analysis with presenteeism score as the outcome. In Model 1,  $\beta$  for the GAWS total score was  $-0.203$  ( $p < 0.001$ ) and  $\beta$  for frequency of gratitude expression was  $-0.048$  ( $p = 0.016$ ). The adjusted R-square value was 0.105. Additionally, significant differences were found in self-rated health and certain age groups. In Model 2,  $\beta$  for the GAWS total score was  $-0.315$  ( $p < 0.001$ ), and  $\beta$  for frequency of gratitude expression was  $-0.041$  ( $p = 0.040$ ) and  $\beta$  for the interaction term was 0.116 ( $p = 0.048$ ). The adjusted R-square value was 0.106. Additionally, significant differences were found in self-rated health and certain age groups.

**Table 1** Descriptive characteristics of the participants (n = 2715)

		N	%
Sex	Men	1610	59.3
	Women	1105	40.7
Age	20–29	263	9.7
	30–39	505	18.6
	40–49	724	26.7
	50–59	842	31.0
	60 or above	381	14.0
Marital status	Single	607	22.4
	Married/having a partner	2009	74.0
	Divorced/bereaved	99	3.6
Occupation	Clerk/administration	902	33.2
	Researcher/academic	1107	40.8
	Technician/engineer	290	10.7
	Professional job	229	8.4
	Others	187	6.9
Self-rated health	Poor/fair	448	16.5
	Good/very good	2267	83.5
Drinking	Every day	337	12.4
	At least once a week	804	29.6
	At least once a month	301	11.1
	Seldom	625	23.0
	Never	648	23.9
Smoking	Every day/at least once a week	250	9.2
	Used to smoke but haven't for over a month	222	8.2
	Never	2243	82.6
Regular exercise habit	No	1814	66.8
	Yes	901	33.2
Frequency of expressing gratitude	Almost never/at least once a month	419	15.4
	At least once a week	969	35.7
	Almost every day	1327	48.9
		Mean	SD
GAWS total		36.0	7.1
Presenteeism score		21.6	18.3

Presenteeism score was measured by the single-item presenteeism question. The score was calculated as 100% – (the response value).

GAWS: Gratitude at Work Scale

SD: standard deviation

**Table 2** Multiple regression model with presenteeism score as the outcome

	Model 1				Model 2			
	B	$\beta$	t-value	p-value	B	$\beta$	t-value	p-value
GAWS total	<b>-0.524</b>	<b>-0.203</b>	<b>-10.297</b>	<b>&lt;0.001</b>	<b>-0.813</b>	<b>-0.315</b>	<b>-5.253</b>	<b>&lt;0.001</b>
Frequency of expressing gratitude	<b>-1.198</b>	<b>-0.048</b>	<b>-2.418</b>	<b>0.016</b>	<b>-1.034</b>	<b>-0.041</b>	<b>-2.057</b>	<b>0.040</b>
Interaction term					<b>0.126</b>	<b>0.116</b>	<b>1.977</b>	<b>0.048</b>
Sex	1.394	0.037	1.791	0.073	1.386	0.037	1.782	0.075
Age (30s)	0.083	0.002	0.06	0.952	0.013	0.000	0.009	0.993
Age (40s)	-2.607	-0.063	-1.864	0.062	-2.627	-0.063	-1.880	0.060
Age (50s)	<b>-2.916</b>	<b>-0.074</b>	<b>-2.074</b>	<b>0.038</b>	<b>-2.950</b>	<b>-0.075</b>	<b>-2.099</b>	<b>0.036</b>
Age (60s)	-1.365	-0.026	-0.854	0.393	-1.381	-0.026	-0.865	0.387
Marital status (Single)	0.815	0.019	0.867	0.386	0.777	0.018	0.827	0.408
Marital status (Divorced/bereaved)	0.630	0.006	0.347	0.729	0.597	0.006	0.329	0.742
Occupation (Researcher/academic)	0.186	0.005	0.222	0.825	0.173	0.005	0.206	0.837
Occupation (Technician/engineer)	-0.646	-0.011	-0.545	0.586	-0.575	-0.010	-0.485	0.628
Occupation (Professional job)	0.200	0.003	0.155	0.877	0.250	0.004	0.194	0.846
Occupation (Others)	1.226	0.017	0.874	0.382	1.094	0.015	0.780	0.436
Self-rated health	<b>-8.964</b>	<b>-0.182</b>	<b>-9.588</b>	<b>&lt;0.001</b>	<b>-8.898</b>	<b>-0.180</b>	<b>-9.518</b>	<b>&lt;0.001</b>
Drinking (At least once a week)	-0.829	-0.021	-0.719	0.472	-0.764	-0.019	-0.663	0.508
Drinking (At least once a month)	1.474	0.025	1.027	0.305	1.595	0.027	1.111	0.267
Drinking (Seldom)	0.412	0.009	0.335	0.738	0.471	0.011	0.383	0.702
Drinking (Never)	1.482	0.035	1.211	0.226	1.511	0.035	1.236	0.217
Smoking (Used to smoke but haven't for over a month)	-2.751	-0.041	-1.709	0.088	-2.685	-0.040	-1.668	0.095
Smoking (Never)	-1.546	-0.032	-1.275	0.202	-1.444	-0.030	-1.190	0.234
Regular exercise habit	-0.138	-0.004	-0.191	0.848	-0.093	-0.002	-0.129	0.897

Presenteeism score was measured by the single-item presenteeism question. The score was calculated as 100% – (the response value).

GAWS total was treated as a continuous variable (range: 10–50). Frequency of expressing gratitude was treated as an ordinal variable (“At least once a month” and “Almost never” were coded as 1, “At least once a week” as 2, and “Almost every day” as 3). Sex (reference: men), age (reference: 20–29), marital status (reference: married/having a partner), occupation (reference: clerk/administration), self-rated health (reference: poor/fair), drinking (reference: every day), smoking (reference: every day/at least once a week) and regular exercise habit (reference: no) were treated as nominal variables.

The interaction term was created by multiplying the centering score of GAWS with the frequency of gratitude expression. Model 1 refers to the multiple regression analysis conducted without the interaction term, and Model 2 refers to the multiple regression analysis including the interaction term.

The adjusted R-square value was 0.105 for model 1 and 0.106 for model 2.

Statistically significant differences are shown in bold.

GAWS: Gratitude at Work Scale

$\beta$ : standardized partial regression coefficient

## DISCUSSION

This study examined the impact of gratitude on presenteeism using a cross-sectional design. Regarding our hypothesis (“Higher trait gratitude and higher frequency of gratitude expression may be associated with lower levels of presenteeism”), we found a correlation between trait gratitude or gratitude expression frequency and presenteeism. Previous studies have not investigated the relationship between gratitude and presenteeism. However, it has been found that gratitude is associated with work engagement.<sup>10</sup> Since presenteeism and work engagement are known to have a negative relationship,<sup>11</sup> the association between gratitude and presenteeism was consistent with previous research findings. In previous studies,<sup>6</sup> the average presenteeism score was 19.4 ( $\pm 17.9$ ). Therefore, the current results for presenteeism score can be considered somewhat higher compared to those in earlier studies.<sup>6</sup> As far as we know, this is the first study on the relationship between gratitude and presenteeism, making this finding novel.

In this study, it was found that trait gratitude is associated with presenteeism. It has already been shown that trait gratitude protects against the deterioration of mental health.<sup>13</sup> Considering that mental health issues have been identified as one of the causes of presenteeism, the relationship between trait gratitude and presenteeism aligns with previous findings. As mentioned above, the main cause of presenteeism is related to mental health issues, but there are also several other causes, including physical problems. This study did not investigate what causes presenteeism, so future research should classify and examine the various causes of presenteeism. Additionally, while this study discusses how feeling and expressing gratitude can affect presenteeism, it is important to note that individuals with existing mental health symptoms or chronic illnesses may have a reduced capacity for gratitude. Therefore, it is essential to consider the possibility of an inverse relationship in such cases.

In this study, it was found that gratitude expression is associated with presenteeism. This association is created in a manner similar to the mechanism of trait gratitude. Furthermore, the find-remind-and-bind theory may support the idea that expressing gratitude strengthens relationships with others. On the other hand, the  $\beta$  values for the frequency of gratitude expression obtained from the results suggest a very weak relationship.

Interestingly, it was found that trait gratitude has a greater impact on the results than frequency of expressing gratitude. This finding is consistent with a previous study<sup>23</sup> which suggests that the reason for this is that trait gratitude is also likely connected to multiple aspects of work, such as interpersonal relationships with others and cognition. For the same reason, trait gratitude may have a greater impact on the results than frequency of expressing gratitude. It was argued that efforts leading to traits like savoring (the act of fully enjoying positive experiences in life) have a greater impact than frequency of expressing gratitude itself, which is why trait gratitude was found to have a stronger effect. In future intervention studies, it might be beneficial to incorporate elements related to savoring. Additionally, the analysis of Model 2 revealed that the interaction term between trait gratitude and frequency of expressing gratitude had a  $\beta$  of 0.116 ( $p = 0.048$ ). The statistical significance was borderline, but it suggested that presenteeism could be influenced by the combination of trait gratitude in the workplace and frequency of expressing gratitude. The findings of this study are particularly relevant for occupational physicians and occupational health staff because they reveal the relationship between presenteeism, a key issue in worker health, and psychological factors such as trait gratitude and the tendency to express gratitude. However, whether gratitude directly decreases presenteeism remains unclear, necessitating further longitudinal studies. Additionally, interventions implemented in the workplace to increase gratitude characteristics or frequency of expressing gratitude may create a workplace where individuals can more easily thrive, highlighting the need for future research.



This study has several strengths. First, it is a large-scale epidemiological study focusing on adult workers, examining the associations between trait gratitude, frequency of gratitude expression and outcomes such as presenteeism. While there have been many previous studies on gratitude, most subjects were students or patients with prevalent diseases.<sup>24</sup> In contrast, this study analyzed workers, making it applicable to the field of occupational health. Second, this study accounted for various individual factors such as age, occupation, sex, marital status, self-rated health, and lifestyle habits like drinking, smoking, and exercise. A particularly interesting finding was that trait gratitude was associated with presenteeism to a similar degree as self-rated health ( $\beta = -0.203$  and  $\beta = -0.315$ , respectively).

However, this study has several limitations. The study design is cross-sectional. The reliability and validity of the scales used to measure gratitude expression have not been fully verified. The relatively low response rate and the fact that only complete responses were included in the analysis, along with the use of internet sampling, may have introduced bias. The determination coefficient of the multiple regression analysis was around 0.1, indicating that not all factors influencing the outcomes were covered. The generalizability of the findings is limited, as a large portion of the participants (41%) were researchers or academics. This study focuses exclusively on gratitude among emotions, but relationships with other emotions such as anger are also anticipated. These limitations highlight the need for further research and exploration.

## CONCLUSION

Trait gratitude and frequency of gratitude expression were associated with presenteeism. However, it remains unclear whether gratitude directly reduces presenteeism, and further longitudinal studies are needed to explore this possibility.

## CONFLICT OF INTEREST STATEMENT

Hotaka Tsukada, Daisuke Hori, Shotaro Doki, Tsukasa Takahashi, Kei Muroi, Mami Ishitsuka, Asako Matsuura, Norishige Kanai, Wakako Migaki, Satoshi Uchida, Toshiya Hayashida, Reem Al Assaad, Soma Nishimura, Akari Fujii, Maral Soronzonbold, Ichiyo Matsuzaki, and Shin-ichiro Sasahara are volunteer members of the working group for the survey conducted by Tsukuba Science City Network. Daisuke Hori, Shotaro Doki, Tsukasa Takahashi, Ichiyo Matsuzaki, and Shin-ichiro Sasahara are volunteer members of the Occupational Health Committee of Tsukuba Science City Network. The authors have no relevant financial interests to disclose.

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