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# Job satisfaction, academic motivation, and organizational citizenship behavior among lecturers during the COVID-19 pandemic: a cross-national comparative study in Japan and Malaysia

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**Abstract**
Job satisfaction and its antecedents and outcomes are important areas of focus in the social sciences research, and higher education is no exception. The importance of this issue has grown during the COVID-19 pandemic. For this reason, using a cross-national study conducted in Malaysia and Japan, we collected data on lecturers' job satisfaction and two of its outcomes, namely, academic motivation and individual-level organizational citizenship behavior (OCBI) to test our evidence-based theoretical model, which explains the relationships between these variables. We also added age, gender, and tenure as covariates to our model. Our partial least squares structural equation modeling estimation results at the aggregate and country levels showed that the effect of job satisfaction on OCBI was mainly transmitted through academic motivation. We also observed that Malaysian and Japanese lecturers did not show a statistical difference in terms of the relationships described between the variables in our model. Additionally, the relationship between academic motivation and OCBI was nonlinear based on the data from the Malaysian sample, and we explained this phenomenon from both theoretical and practical/policy perspectives. Moreover, our results showed that age plays an important role in the model when it is estimated using data from the Malaysian higher education system. We discussed our findings in detail in terms of theoretical and practical implications.

**Keywords** Job satisfaction · Academic motivation · Individual-level organizational citizenship behavior (OCBI) · Higher education · COVID-19 pandemic · Malaysia · Japan

## Introduction

Higher education has weathered many global trends (e.g., massification, digitalization, and marketization), and institutions of higher learning play a vital role in supporting knowledge-based economies through their functions of teaching, research, and service (Wan et al., 2020). For instance, in today's competitive labor markets, both lecturers and universities are under increasing pressure to enhance graduate employability (Jackson & Bridgstock, 2018) and produce work-ready graduates (Holdsworth & Thomas, 2020). Additionally, new business management practices in academic settings have had a direct effect on, for example, mid-level academics who are increasingly required to effectively perform both managerial and academic duties (Butler, 2020). Moreover, because of the ongoing COVID-19 pandemic, a rapid expansion of online teaching and learning has pushed faculty and students into quickly adapting to virtual learning patterns (Mok & Montgomery, 2021) within the shortest possible time and, to some extent, without sufficient training to utilize these novel online teaching and learning platforms to their fullest extent. This situation mirrors the stressful and unsettled state of the higher education landscape, and studying academics' behaviors [e.g., job performance and organizational citizenship behavior (OCB)] and attitudes (e.g., job satisfaction and motivation) is increasingly relevant at present. Job satisfaction in particular has received much attention but remains widely debated (Uhl-Bien et al., 2014).

Professional priorities and rewards, administrative relationships and support, and quality of benefits and services are the

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three main factors for academics' job satisfaction (Kim et al., 2011). However, based on such theoretical foundations as affective events theory (AET; Weiss & Beal, 2005) and empirical findings, such as those of Ghasemy, Mohajer, et al. (2020a) and Ghasemy, Morshidi, et al. (2021c)), the role of affective states in influencing job satisfaction should not be neglected. Factors such as weak job security and poor career prospects can lead to negative affective states and thus can adversely influence researchers' job satisfaction and wellbeing (Waaijer et al., 2017). Additionally, dissatisfaction impairs motivation and restricts individual and institutional productivity and success (Webber, 2019); it may even lead to withdrawal or disengagement from the local or larger academic community (Hagedorn, 2000). From an internationalization perspective, academics' job satisfaction carries considerable weight. Specifically, identifying the factors that can promote academics' job satisfaction across countries, and supporting and retaining them is crucial (Mamiseishvili & Lee, 2018). Although academics' motivation continues to receive considerable attention within the field of higher education (Ansyari et al., 2019), especially the motivation of adopting technology (Sharma & Srivastava, 2019) because of the major relevance of this issue in the ongoing COVID-19 pandemic, academics' job satisfaction is an under-researched subject, and it requires further discussion and documentation (Machado-Taylor et al., 2016). Moreover, the higher education literature has been surprisingly silent about the connections between research performance and the other roles and tasks that academics are called upon to undertake, such as academic citizenship, which focuses on academics' role in providing services to universities, the scientific community, and society at large (Tagliaventi & Carli, 2019).

We focused on academic motivation and individual-level OCB (OCBI) as the outcomes of academics' job satisfaction to address the following research question: *To what extent does academic motivation mediate the relationship between job satisfaction and OCBI?* The study of job satisfaction among people in professional markets (e.g., academics) is arguably a part of a wider study on job satisfaction, in relation to different perspectives, such as psychology, human resources management, and economics (Albert et al., 2018). Nevertheless, the nexus of the variables that construct a mediation mechanism is of interest to our study. Other motivations to conduct this study include the methodological issues observed in many previous studies that had investigated the relationships among the variables of interest in our study. These methodological shortcomings include issues such as small samples, descriptive analyses, failure to consider control variables, and simple first-generation data analytic methods, such as seen in Sledge et al. (2008), Nurjanah et al. (2020), and Dharma (2018). To test our model, we collected data from academics at Japanese and Malaysian public and private universities and utilized partial least squares structural equation modeling (PLS-SEM) (Ghasemy, Teeroovengadum, et al., 2020b) to analyze our data. We conducted a multigroup analysis to better understand the differences between academics working in the two countries. It is noteworthy that Malaysia is a multicultural, multilingual, multi-religion, and multiethnic country, with a population of ethnic Malays and members of indigenous peoples (67%), ethnic Chinese (25%), ethnic Indians (7%), and other minority ethnic groups (1%) (Wan et al., 2020). Malaysia has many cultural similarities with its neighbors (e.g., Singapore and Indonesia), and it is a successful education hub in the region (Ghasemy, Farhah, et al., 2021a; Wan & Morshidi, 2018b), because of the serious and concerted effort it has made to internationalize higher education, albeit with a focus on nation building and the preservation of its languages, cultures, and identity (Wan & Morshidi, 2018a). Japan also has a rich culture, and similar to Malaysia, the internationalization of higher education is an important facet of its education agenda (Saito & Kim, 2019; Yonezawa, 2017). At an institutional level, Japanese universities have implemented policies and programs to promote the internationalization and cultivation of global personnel such as increased enrollment of international students, the implementation of English-medium instructed courses, and a diversification of study-abroad programs (Ota, 2018).

Since we identified empirical support for our proposed model, we can summarize the contribution of this study as (1) focusing on job satisfaction as a central attitude and assessing its impact on the two main outcomes of academic motivation and OCBI, using a cross-national study; (2) comparing academics affiliated with either Malaysian or Japanese universities with respect to the proposed model; and (3) providing evidence-based policy recommendations that can be used to enhance job satisfaction among academics and, consequently, their motivation and OCBI.

## Literature review

The intersection of job satisfaction, academic motivation, and OCBI forms the foundation of the theoretical framework of our study. Job satisfaction, as part of a general attitude toward one's employment, is important because of its impact on the physical and mental wellbeing of employees (Oshagbemi, 2000). Motivation empowers people to perform particular assigned tasks and actions (Sharma & Srivastava, 2019) and is related to, for example, job characteristics (Winter & Sarros, 2002). Relatedly, while intrinsic motivation is produced by the desire to satisfy the internal rewards, extrinsic motivation is rooted in influences outside of the individual (Ryan & Deci, 2000). OCB (Organ, 1988; Organ et al., 2006) describes workplace activities that exceed formal job requirements and assist in the effective operation of the organization. Williams and Anderson (1991) categorized OCB into individual-level (OCBI) and organizational-level (OCBO).

It is important to highlight that, according to AET (Weiss & Beal, 2005; Weiss & Cropanzano, 1996), job satisfaction

and motivation are considered attitudes and are believed to be driven by features of the work environment and affective states. Additionally, while OCBI is an affect-driven behavior and is driven only by affective states (Weiss & Cropanzano, 1996), there are empirical and meta-analytic studies suggesting the impact of other behaviors and attitudes on OCBI [e.g., Ilies et al. (2009) and Kao (2017)].

### Relationship between job satisfaction and motivation

Job satisfaction is an important factor for the revitalization of motivation among employees (Machado-Taylor et al., 2016, 2017), and higher job motivation is a positive outcome of job satisfaction (Sledge et al., 2008). Many studies have been undertaken to measure the impact of job satisfaction on motivation. For example, Al-Sada et al. (2017) observed the effect of job satisfaction on the motivation of employees in the Qatari education sector. A single organization case study incorporating seven retail stores conducted by Stringer et al. (2011) identified that intrinsic motivation was positively associated with the pay and job satisfaction of front-line employees. Moreover, evidence has been found that dissatisfaction reduces motivation in academic settings (Webber, 2019). These empirical findings provide support for the impact of job satisfaction on motivation.

### Relationship between motivation and OCBI

The association between motivation and OCBI is germane to our discussion. In a multilevel study by Shareef and Atan (2019), conducted in the context of three large public universities in the Kurdistan region of Iraq, it was found that, intrinsic motivation significantly and comparably influences academics' OCBI and OCBO. A study of the Chinese University of Hong Kong conducted by Chen and Carey (2009) found support for the impact of students' intrinsic motivation on self-regulated citizenship behavior. In nonacademic venues, motivation is also shown to be an influence on OCBI. In a municipal setting in the United States, Rioux and Penner (2001) showed that the motives associated with prosocial values were strongly associated with OCBI. Likewise, a study of public employees working for Korean local government organizations showed that the public service motivation was an important antecedent for government employees' OCB (Shim & Faerman, 2017). This observation has also been noted in banking in Indonesia (Dharma, 2018), as well as in a government agency in Taiwan (Kao, 2017). These findings indicate motivation is considered a predictor of OCBI.

### Relationship between job satisfaction and OCBI

The effect of job satisfaction on citizenship behaviors was investigated using a meta-analytic path analysis study by Ilies et al. (2009), which found that job satisfaction is a significant predictor for both OCBI and OCBO. Grisaffe et al. (2016) showed that salespersons' satisfaction influences their OCB. Nurjanah et al. (2020) obtained evidence of the impact of civil servants' job satisfaction on OCB at the Inspectorate General of the Ministry of Education and Culture, Indonesia. In another study, evidence was offered for the influence of health professionals' job satisfaction on OCB (Ng et al., 2021). Foote and Li-Ping Tang (2008), in their study on full-time workers at manufacturing facilities, showed that job satisfaction is a significant predictor for OCB, and this causal relationship is moderated by team commitment, such that this effect grows when team commitment is high. Another study undertaken in an academic context revealed that lecturers' job satisfaction was a significant predictor of their OCB (Indarti et al., 2017). The same relationship was found again in the context of Indian private sector banks (Belwalkar et al., 2018; Kaur et al., 2020). A cross-national study in China, Kuwait, and the United States by Alkhadher et al. (2020) found that job satisfaction is more closely tied to OCBO for employees in China and Kuwait than it was for employees in the United States, but job satisfaction was more closely related to OCBI for employees for whom collectivist values were low. Finally, with the use of meta-analysis and path analysis, Fassina et al. (2008) found evidence for the effects of global job satisfaction on all of the five dimensions of OCB (i.e., altruism, conscientiousness, courtesy, civic virtue, and sportsmanship) that were originally proposed by Organ (1988). These findings constitute support for the proposition of the effect of job satisfaction on OCBI.

### Our proposed theoretical model

Considering these empirical findings regarding the effect of job satisfaction on motivation and OCB, as well as on the effect of job satisfaction on motivation, we propose the following hypothesis:

**H1(+)** Lecturers' academic motivation positively mediates the relationship between job satisfaction and OCBI.

Additionally, as we collected data from academics working at both Malaysian and Japanese institutions, we proposed the following hypothesis to compare the academics in terms of the relationships between the constructs that are depicted in Fig. 1:

**H2** Malaysian and Japanese academics differ in terms of the job satisfaction–academic motivation–OCBI nexus.

**H2a** Malaysian and Japanese academics differ in terms of the effect of job satisfaction on academic motivation.

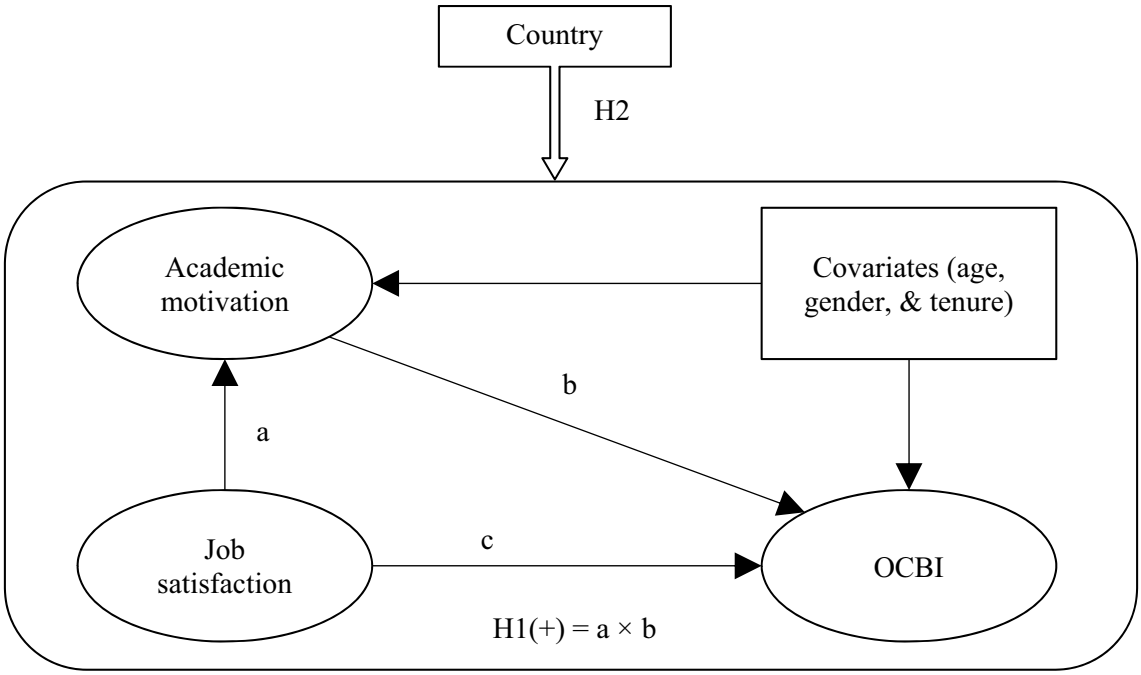


**Fig. 1** Theoretical model of the relationship between job satisfaction and OCBI with academic motivation as the mediator and with three demographic covariates

**H2b** Malaysian and Japanese academics differ in terms of the effect of academic motivation on OCBI.

**H2c** Malaysian and Japanese academics differ in terms of the effect of job satisfaction on OCBI.

**H2d** Malaysian and Japanese academics differ in terms of the indirect effect of job satisfaction on OCBI via academic motivation.

To ensure that the results were not biased, we included age, gender, and tenure in our model, as they have been widely used covariates in social sciences research (Bernerth & Aguinis, 2016).

## Method

### Research design and analytic procedure

Our study was quantitative in nature and featured a theoretical model that was tested from an explanatory–predictive perspective (Ghasemy, Teeroovengadum, et al., 2020b; Henseler, 2018). We used PLS-SEM to test the model for reasons such as its appropriateness for testing our mediating hypothesis (Sarstedt, Hair, et al., 2020a) and the need for latent variable scores to undertake follow-up analyses such as the examination of nonlinear effects (Sarstedt, Ringle, et al., 2020b). In addition, we conducted measurement invariance assessment through the measurement invariance of composite models (MICOM) procedures (Henseler et al., 2016) followed by a permutation-based multigroup analysis to test our second hypothesis. For the analyses, we used the SmartPLS 3 statistical package (Ringle et al., 2015).

### Measures and covariates

Each of the constructs included in our theoretical model (Fig. 1) uses a reflective measurement model. For job satisfaction, we collected data using the eight-item scale developed by Oshagbemi (2000). Academic motivation was measured using the six-item scale developed by Machado-Taylor et al. (2017), and OCBI was operationalized using the seven-item OCBI scale by Williams and Anderson (1991). The respondents rated the items using a 5-point symmetric and equidistant Likert scale, ranging from 1 (totally disagree) to 5 (totally agree). We also added age, gender, and tenure, which are widely used covariates in research in the social sciences (Bernerth & Aguinis, 2016), to our proposed model to account for endogeneity (Hult et al., 2018). The items of the final validated model with their selected descriptive statistics appear in Online Appendix A1.

### Population and sample

Academics working at public and private universities in Malaysia and Japan were the target population. Subject to the availability of their contact email addresses via the universities' websites, we created a database with 32,391 addresses containing 23,050 of academics in the Malaysian institutions as well as 9341 of academics in the Japanese institutions. We used this database as the input for the SurveyMonkey survey distribution and management system. Using a simple random sampling method, we administered our survey among the academics. We also sent reminders to those who had not completed the survey. Of the final total of 687 surveys obtained, 23 were incomplete and were discarded. The initial data screening procedure indicated that the maximum missingness rate per indicator was less than 1%; in line with Tabachnick and Fidell (2013), therefore, we replaced the missing values with the indicators' median values. Then, we focused on identifying multivariate outliers (Ghasemy, Teeroovengadum, et al., 2020b). In doing so, we specified and estimated our model using the EQS statistical package (Bentler & Wu, 2018) to examine the Mardia's normalized estimate of multivariate kurtosis statistic (Mardia, 1974; Yuan et al., 2004). Through this procedure, we detected six multivariate outliers with large contributions to this statistic. These were deleted from our data. The removal of the outlying cases reduced the Mardia's normalized multivariate kurtosis statistic from 78.29 to 71.10, which remained greater than 5 and, thus, indicative of the multivariate nonnormal nature of our data (Bentler, 2006). This provided us with further support in terms of the applicability of our nonparametric PLS method in estimating the model from an explanatory–predictive perspective (Ghasemy, Teeroovengadum, et al., 2020b) although, in general, nonnormal data can also be analyzed using parametric methods (Ghasemy, 2022; Ghasemy, Hazri, et al., 2021b; Ghasemy, Morshidi, et al., 2021c; Satorra & Bentler, 1994). Table 1 displays the demographic profile of the final sample of $N = 658$. Interestingly, the Japanese respondents were nearly all male and generally older than the Malaysian respondents. The distributions were similar across private/public, but the Japanese sample included more professors and associate professors (86.2%) than the Malaysian sample (25.3%).

## Results

### Measurement model evaluation

To assess the measurement models, we followed the guiding principles proposed by Ghasemy, Teeroovengadum, et al. (2020b)). We identified seven items with factor loadings smaller than 0.7 and deleted them from our model. We conducted a one-tailed percentile bootstrapping test (Aguirre-Urreta & Rönkkö, 2018) with 10,000 subsamples at a 5% significance level to generate confidence intervals for both reliability and validity measures. The results revealed that all of the average variance extracted (AVE) values and the lower bounds of their confidence intervals were larger than 0.5, indicating an acceptable level of convergent validity. We observed that the reliability statistics and the lower bounds of their confidence intervals were larger than 0.7, and the upper bounds were desirably smaller than 0.95, indicating that the scales were reliable. The heterotrait–monotrait (HTMT) values and the upper bounds of their confidence intervals were smaller than 0.85, denoting acceptable levels of discriminant validity according to the $HTMT_{0.85}$ criterion (Franke & Sarstedt, 2019). Tables 2 and 3 present detailed aggregate-level statistics. For country level statistics in terms of loadings, validity, and reliability estimates, see Online Appendices A2 and A3.

### Structural model evaluation

Following Ghasemy, Teeroovengadum, et al. (2020b), we assessed collinearity among the predictors, the statistical significance and practical relevance of the path coefficients, the $R^2$ values of the outcome variables, the predictors' $f^2$ effect sizes, and the decomposition of the $R^2$ values. Additionally, we evaluated our model's out-of-sample predictive power using the $PLS_{predict}$ analysis (Shmueli et al., 2019).

As presented in Table 4, collinearity among the predictors was not a concern in our analysis, as the variance inflation factor (VIF) values fell below 3. Additionally, the direct and indirect paths between the latent variables were in the hypothesized direction and statistically significant at a 5% level of significance based on one-tailed percentile bootstrapping test results for 10,000 subsamples (Streukens & Leroi-Werelds, 2016). With respect to the relevance of the path coefficients, while the paths running from satisfaction to motivation ($\beta = 0.510$) and from motivation to OCBI ($\beta = 0.492$) were practically relevant, the significant path between satisfaction and OCBI ($\beta = 0.085$) did not seem to be highly relevant due to its small size and the low $f^2$ value of job satisfaction. Our model showed that motivation was nearly six times stronger than satisfaction in predicting OCBI. Because of the statistical significance of the paths among the three latent variables in our model, the results indicated empirical support for H1(+) ($\beta = 0.251$, $p < 0.001$). More specifically, the supported mediation hypothesis was of the complementary partial mediation type, as both the direct and indirect effects were significant and were pointing in the same direction (Nitzl et al., 2016). Furthermore, a two-tailed percentile bootstrapping test (with 10,000 subsamples at a 5% significance level) to evaluate the effects of the covariates indicated a significant difference between

**Table 1** Demographic profile of the final sample of academics from Malaysia and Japan

| Variables | Categories | Japan ($N=109$) | | Malaysia ($N=549$) | | Total ($N=658$) | |
|---|---|---|---|---|---|---|---|
| | | *N* | % | *N* | % | *N* | % |
| Gender | Female | 13 | 11.9 | 309 | 56.3 | 322 | 48.9 |
| | Male | 96 | 88.1 | 240 | 43.7 | 336 | 51.1 |
| Age | 35 or younger | 6 | 5.5 | 78 | 14.2 | 84 | 12.8 |
| | 35–45 | 16 | 14.7 | 215 | 39.2 | 231 | 35.1 |
| | 45–55 | 34 | 31.2 | 170 | 31.0 | 204 | 31.0 |
| | 55–65 | 49 | 45.0 | 73 | 13.3 | 122 | 18.5 |
| | 65 or older | 4 | 3.7 | 13 | 2.4 | 17 | 2.6 |
| Marital status | Single | 14 | 12.8 | 133 | 24.2 | 147 | 22.3 |
| | Married | 95 | 87.2 | 416 | 75.8 | 511 | 77.7 |
| University type | Public | 84 | 77.1 | 378 | 68.9 | 462 | 70.2 |
| | Private | 25 | 22.9 | 171 | 31.1 | 196 | 29.8 |
| Academic rank | Lecturer | 3 | 2.8 | 131 | 23.9 | 134 | 20.4 |
| | Senior lecturer/Assistant professor | 10 | 9.2 | 271 | 49.4 | 281 | 42.7 |
| | Associate professor | 30 | 27.5 | 96 | 17.5 | 126 | 19.1 |
| | Professor | 64 | 58.7 | 43 | 7.8 | 107 | 16.3 |
| | Other (Research fellow, etc.) | 2 | 1.8 | 8 | 1.5 | 10 | 1.5 |
| Holding administrative post | Yes | 60 | 55.0 | 249 | 45.4 | 309 | 47.0 |
| | No | 49 | 45.0 | 300 | 54.6 | 349 | 53.0 |
| Experience outside HE | Yes | 59 | 54.1 | 370 | 67.4 | 429 | 65.2 |
| | No | 50 | 45.9 | 179 | 32.6 | 229 | 34.8 |
| Disciplinary background | Sciences | 28 | 25.7 | 62 | 11.3 | 90 | 13.7 |
| | Social sciences & Humanities | 36 | 33.0 | 260 | 47.4 | 296 | 45.0 |
| | Engineering & Technology | 40 | 36.7 | 146 | 26.6 | 186 | 28.3 |
| | Health | 5 | 4.6 | 49 | 8.9 | 54 | 8.2 |
| | Other | 0 | 0.0 | 32 | 5.8 | 32 | 4.9 |

**Table 2** Loadings, convergent validity, and reliability estimates ($N=658$)

| Latent variable | Item | Entire sample (Malaysia and Japan) | | | | |
|---|---|---|---|---|---|---|
| | | Loading | Alpha | $\rho$_A | CR | AVE |
| Motivation | M1 | 0.799 | 0.844 [0.824, 0.862] | 0.850 [0.831, 0.868] | 0.889 [0.877, 0.901] | 0.617 [0.589, 0.645] |
| | M3 | 0.782 | | | | |
| | M4 | 0.713 | | | | |
| | M5 | 0.857 | | | | |
| | M6 | 0.77 | | | | |
| OCBI | OCBI1 | 0.799 | 0.858 [0.838, 0.875] | 0.859 [0.841, 0.878] | 0.898 [0.885, 0.909] | 0.638 [0.607, 0.667] |
| | OCBI2 | 0.855 | | | | |
| | OCBI3 | 0.784 | | | | |
| | OCBI4 | 0.778 | | | | |
| | OCBI5 | 0.776 | | | | |
| Satisfaction | S4 | 0.742 | 0.787 [0.759, 0.813] | 0.795 [0.768, 0.823] | 0.861 [0.845, 0.876] | 0.609 [0.577, 0.639] |
| | S5 | 0.802 | | | | |
| | S6 | 0.807 | | | | |
| | S7 | 0.768 | | | | |

*CR* composite reliability, *AVE* average variance extracted; the values in brackets are the lower and upper bounds of the one-tailed percentile confidence intervals with 10,000 subsamples at a 5% significance level

**Table 3** Discriminant validity assessment based on $HTMT_{0.85}$ criterion ($N = 658$)

| Latent variable | Entire sample (Malaysia and Japan) | |
|---|---|---|
| | Motivation | OCBI |
| OCBI | 0.634 [0.560, 0.697] | |
| Satisfaction | 0.613 [0.548, 0.672] | 0.390 [0.307, 0.465] |

The values in brackets are the lower and upper bounds of the one-tailed percentile confidence intervals with 10,000 subsamples at a 5% significance level

male and female academics in motivation ($\beta = -0.068$, $p = 0.044$), with female academics demonstrating a higher mean score.

The model's explanatory power for motivation ($R^2 = 0.265$) and OCBI ($R^2 = 0.298$) was between the weak and moderate levels; this is a predictable result because of the small number of predictors in our model. Our analysis showed that motivation was the main source of variation in OCBI ($\tau = 0.264$). Relatedly, in terms of $f^2$ effect sizes and following the guidelines suggested by Cohen (1988) for the evaluation of effect sizes (i.e., 0.02 = small, 0.15 = medium, and 0.35 = large), our results showed that the effect size of job satisfaction on academic motivation ($f^2 = 0.348$) was large, the effect size of academic motivation on OCBI ($f^2 = 0.253$) was medium, and the remainder of the effect sizes were small.

In the final step, we assessed the model's out-of-sample predictive power. We ran the $PLS_{predict}$ analysis (Shmueli et al., 2019) with the default settings (10 folds and 10 repetitions) and evaluated OCBI as the key target construct. All the $Q^2_{predict}$ values under the PLS results section were above zero, and the mean absolute error (MAE) statistics of four (out of five) items in the PLS results section were smaller than the MAE values for the items based on the linear model (LM). Consequently, we concluded that the proposed model's out-of-sample predictive performance was medium (Ghasemy, Teeroovengadum, et al., 2020b; Shmueli et al., 2019). Detailed results for $PLS_{predict}$ appear in Online Appendix A4.

Figure 2 depicts the final model with the factor loadings, path coefficients, and the $R^2$ of the endogenous constructs.

## Multigroup analysis

To test H2 using a permutation-based multigroup analysis (Chin & Dibbern, 2010), we first established measurement invariance based on the three-step MICOM approach (Henseler et al., 2016). In the first step, configural invariance was achieved on the grounds of identical items per construct for each group, identical data treatment procedures, and identical algorithm settings. In the second step, compositional invariance was established by running a two-tailed permutation test with 5,000 permutations at a 5% significance level. Using this procedure and focusing on the different measurement models, we computed the correlations between the composite scores and then tested the null hypothesis that this correlation was equal to 1 (Henseler et al., 2016). The nonsignificant permutation $p$ values showed that compositional invariance was tenable

**Table 4** Structural model evaluation results ($N = 658$)

| Outcome | Predictor | Path/hypothesis | Entire sample ($N = 658$) | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | $\beta$ | $p$ value | PCI | $R^2$ | $f^2$ | VIF | $\tau$ |
| *Motivation* | | | | | | 0.265 | | | |
| | Satisfaction | Satisfaction → motivation | 0.510 | 0.000 | [0.458, 0.564] | | 0.348 | 1.018 | 0.260 |
| | Age | Age → motivation | 0.020 | 0.562 | [−0.047, 0.086] | | 0.000 | 1.051 | 0.001 |
| | Gender | Gender → motivation | −0.068 | 0.044 | [−0.133, -0.002] | | 0.006 | 1.034 | 0.003 |
| | Tenure | Tenure → motivation | 0.024 | 0.455 | [−0.039, 0.087] | | 0.001 | 1.036 | 0.000 |
| *OCBI* | | | | | | 0.298 | | | |
| | Satisfaction | Satisfaction → OCBI | 0.085 | 0.017 | [0.018, 0.151] | | 0.008 | 1.372 | 0.028 |
| | Motivation | Motivation → OCBI | 0.492 | 0.000 | [0.425, 0.560] | | 0.253 | 1.360 | 0.264 |
| | Age | Age → OCBI | 0.041 | 0.221 | [−0.025, 0.106] | | 0.002 | 1.052 | 0.002 |
| | Gender | Gender → OCBI | −0.035 | 0.286 | [−0.099, 0.031] | | 0.002 | 1.040 | 0.002 |
| | Tenure | Tenure → OCBI | 0.041 | 0.187 | [−0.019, 0.102] | | 0.002 | 1.037 | 0.001 |
| Indirect effects | | H1: Satisfaction → motivation → OCBI | 0.251 | 0.000 | [0.212, 0.296] | | | | |

The effects of the predictors on the outcome variables were assessed based on a one-tailed percentile bootstrapping test with 10,000 subsamples and at a 5% significance level. The effects of the covariates on the outcome variables were assessed based on a two-tailed percentile bootstrapping test with 10,000 subsamples and at a 5% significance level

*PCI* percentile confidence interval, *VIF* variance inflation factor; $\tau$ $R^2$ decomposition value

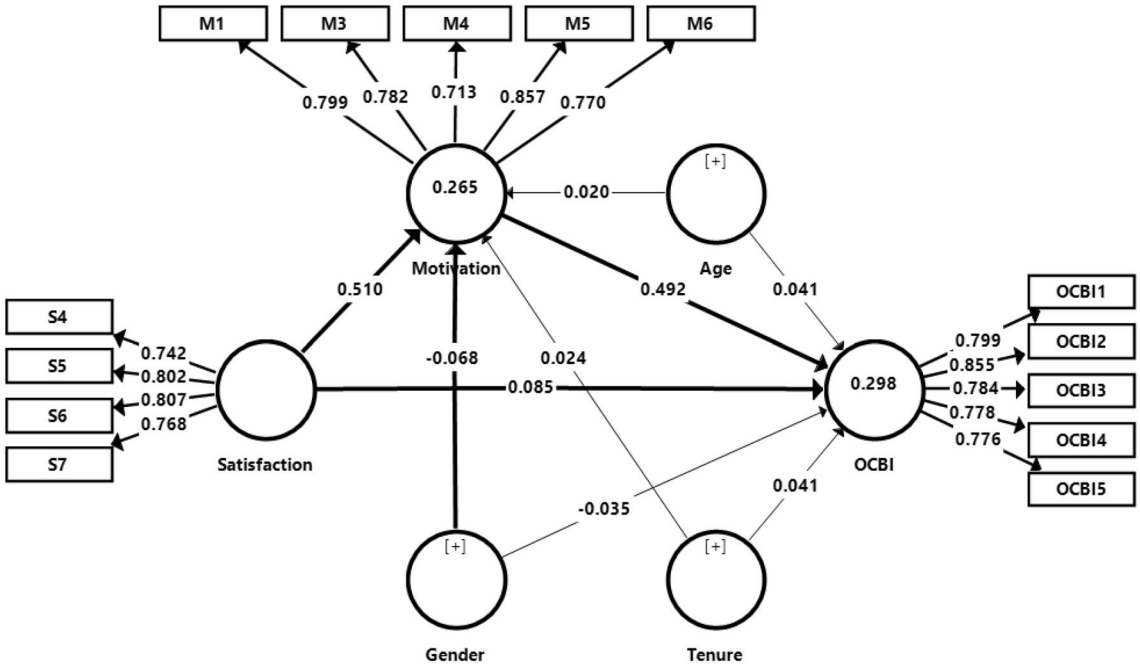


**Fig. 2** Final model ($N = 658$) (Nonsignificant paths displayed using thinner lines)

for each measurement model. With respect to the full measurement model invariance assessment, as the third step of MICOM, we focused on assessing the equality of composite means and composite variances (Henseler et al., 2016) and observed that only composite variances in both the Malaysian and Japanese samples were equal, denoting a failure to establish the full measurement invariance criterion. Nevertheless, the establishment of compositional invariance (i.e., partial measurement invariance) made group comparison feasible (for detailed MICOM results, see Online Appendix A5).

Table 5 presents the results of the multigroup analysis. As displayed in this table, although the magnitudes of the direct and indirect effects between the latent variables were larger based on the data from the Malaysian sample, the differences in magnitudes were not statistically significant. Therefore, the H2 sub-hypotheses (H2a to H2d) were not empirically supported (see the $\beta_{\text{difference}}$ values in Table 5). Nevertheless, for the three covariates (i.e., age, gender, and tenure) that we added to the model, we observed a significant difference between the two groups for the effect of age on OCBI ($\beta_{\text{difference}} = -0.233$, $p = 0.008$). More specifically, the effect of age on OCBI was not significant for the Japanese academics ($\beta = -0.137$, $p = 0.102$), but it was positive and significant among the Malaysians ($\beta = 0.097$, $p = 0.007$). In the Japanese sample, we observed that the path running from job satisfaction to OCBI ($\beta = 0.011$, $p = 0.471$) was not significant. As this path was significant for the Malaysian sample ($\beta = 0.102$, $p = 0.009$), in accordance with Nitzl et al. (2016), we concluded that the mediation type for the Japanese sample was full, but it was complementary partial for the Malaysian sample. We also noted that age significantly and positively predicted Malaysian academics' motivation ($\beta = 0.075$, $p = 0.035$).

## Robustness check

As a robustness check for PLS-SEM (Sarstedt, Ringle, et al., 2020b), we examined nonlinear relationships among the latent variables for each group-specific model. In doing so, we created quadratic effects using the two-stage approach with default settings. This analysis was conducted to check whether evidence would be found in terms of the robustness of the linear effects. Focusing on the model and using data from the Japanese sample, our results of a two-tailed percentile bootstrapping test at a 5% significance level with 10,000 subsamples revealed that all the direct effects were linear. However, the results based on the data collected from the Malaysian sample indicated a quadratic effect of academic motivation on OCBI ($\beta = 0.110$, $p = 0.004$) that was statistically significant. Table 6 displays the results.

Equation 1 explains the nonlinear relationship between academic motivation and OCBI in the Malaysian context. Notably, including quadratic terms in the model changed the path coefficients for the relationship between academic motivation to OCBI from 0.462 (see Table 5) to

**Table 5** Sample-specific and multigroup analysis results

| Path/hypothesis | Japan ($N=109$) | | Malaysia ($N=549$) | | Multigroup ($N=658$) | |
|---|---|---|---|---|---|---|
| | $\beta_{Japan}$ | $p$ value | $\beta_{Malaysia}$ | $p$ value | $\beta_{difference}$ | $p$ value |
| H2a (+): Satisfaction → motivation | 0.361 | 0.000 | 0.522 | 0.000 | −0.161 | 0.057 |
| H2b (+): Motivation → OCBI | 0.453 | 0.000 | 0.462 | 0.000 | −0.009 | 0.936 |
| H2c (+): Satisfaction → OCBI | 0.011 | 0.471 | 0.102 | 0.009 | −0.092 | 0.414 |
| H2d (+): Satisfaction → motivation → OCBI | 0.164 | 0.002 | 0.241 | 0.000 | −0.078 | 0.282 |
| Age → motivation | −0.002 | 0.985 | 0.075 | 0.035 | −0.077 | 0.410 |
| Age → OCBI | −0.137 | 0.102 | 0.097 | 0.007 | −0.233 | 0.008 |
| Gender → motivation | −0.155 | 0.081 | 0.006 | 0.873 | −0.161 | 0.079 |
| Gender → OCBI | −0.055 | 0.364 | −0.005 | 0.895 | −0.051 | 0.580 |
| Tenure → motivation | 0.098 | 0.363 | 0.053 | 0.141 | 0.046 | 0.615 |
| Tenure → OCBI | 0.072 | 0.409 | 0.061 | 0.079 | 0.010 | 0.906 |

The effects of the predictors on the outcome variables were assessed based on a one-tailed percentile bootstrapping test with 10,000 subsamples and at a 5% significance level. The effects of the covariates on the outcome variables were assessed based on a two-tailed percentile bootstrapping test with 10,000 subsamples and at a 5% significance level; The permutation-based multigroup analysis was undertaken based on a two-tailed test with 5,000 permutations and at a 5% significance level

For the model based on the data from the Japanese sample, the $R^2_{Motivation}=0.164$ and $R^2_{OCBI}=0.238$. For the model based on the data from the Malaysian sample, the $R^2_{Motivation}=0.282$ and $R^2_{OCBI}=0.299$

**Table 6** Group-specific robustness check results

| Quadratic effects | Japan | | Malaysia | |
|---|---|---|---|---|
| | β | Confidence interval | β | Confidence interval |
| Quadratic effect of satisfaction → Motivation | 0.153 | [−0.014, 0.284] | 0.001 | [−0.059, 0.075] |
| Quadratic effect of motivation → OCBI | 0.106 | [−0.032, 0.229] | 0.110 | [0.021, 0.170] |
| Quadratic effect of satisfaction → OCBI | 0.041 | [−0.088, 0.156] | 0.000 | [−0.068, 0.079] |

The quadratic effects were assessed based on a two-tailed percentile bootstrapping test with 10,000 subsamples and at a 5% significance level

0.574 (see Eq. 1 and Fig. 3). This increased the $R^2$ of OCBI from 0.299 to 0.329.

The nonlinear equation defining the relationship between academic motivation and OCBI

$$\text{OCBI} = (0.547 * \text{academic motivation}) + \left[0.110 * (\text{academic motivation})^2\right] \quad (1)$$

Additionally, Fig. 3 displays the linear relationship and the nonlinear curve between academic motivation and OCBI in the Malaysian context.

Finally, given that the $f^2$ of the significant quadratic effect was 0.028, as suggested by Ghasemy, Teerooven-gadum, et al. (2020b), and using the guidelines proposed by Kenny (2015), we concluded that the effect size was large, implying that the significant nonlinear relationship between the academic motivation and OCBI identified in the data collected from the Malaysian sample was relevant. We will address this in the discussion section.

## Discussion

In this study, we built a research-based theoretical model and used data from lecturers affiliated with the Malaysian and Japanese universities to test it. Our analysis indicated that at the aggregate-level, the effect of job satisfaction on OCBI was mainly transmitted through academic motivation (see Table 4). More specifically, our mediation hypothesis H1(+) was supported, and the mediation type was complementary partial (Nitzl et al., 2016). Thus, job satisfaction increased academic motivation which, in turn, enhanced OCBI. Notably, the indirect effect of job satisfaction on OCBI through academic motivation ($\beta=0.251$) was 3 times larger than its direct effect on OCBI ($\beta=0.085$). At the country level, H1(+) was supported too (see Table 5), yet the mediation type based on the data collected from the Japanese lecturers was full (since the effect of job satisfaction on OCBI was not

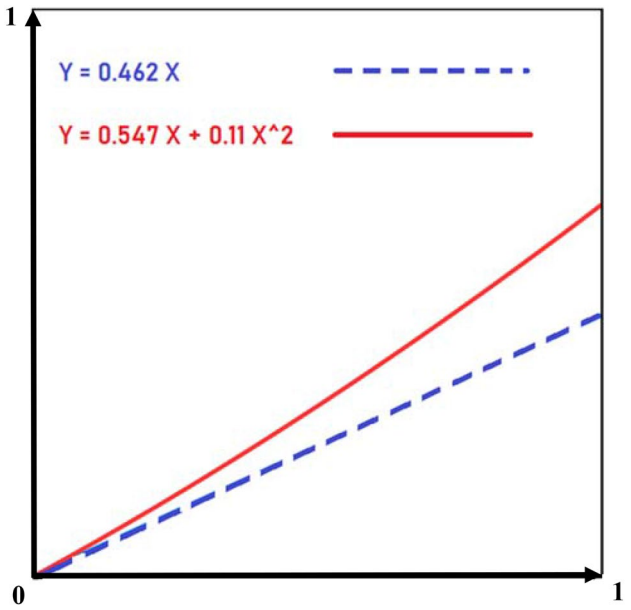


**Fig. 3** The linear and nonlinear relationships between academic motivation and OCBI based on the data collected from the Malaysian sample

significant) and regarding the sampled Malaysian academics, it was partial.

With respect to our second hypothesis, empirical evidence was not found to support H2, although the magnitudes of the direct and indirect effects between the latent variables (H2a to H2d) were larger in the data drawn from the Malaysian sample than from the Japanese sample. We also observed that age significantly predicted Malaysian lecturers' academic motivation and OCBI, such that the older the lecturers, the higher their levels of academic motivation and OCBI (for country-specific estimations and the results of multigroup analysis, see Table 5).

Our group-specific robustness check results identified that the relationship between academic motivation and OCBI among the Malaysian lecturers was nonlinear. OCBI is, theoretically speaking, an affect-driven behavior (Weiss & Beal, 2005) and is therefore similar to the concept of episodic performance (Beal et al., 2005). OCBI varies depending on the condition of affective states. This suggests that the behaviors of Malaysian lecturers are driven by their affective states, and Japanese academics appear less prone to the influence of their affective states. One possible explanation for this nonlinearity could be found in the implementation of COVID-19 policies. In other words, perhaps, the COVID-related policies developed were more effectively implemented in Japan (e.g., Miki et al. (2020)) to the extent that Japanese lecturers felt relatively more stable affective states (i.e., without drastic changes) during the pandemic, which, in turn, resulted in lower fluctuation in affect-driven behaviors (e.g., OCBI). Nevertheless, both job satisfaction and academic motivation can be considered attitudes (Weiss & Beal, 2005), whereas only the relationship between academic motivation and OCBI was nonlinear. Thus, the linear relationship between job satisfaction and OCBI among the Malaysian lecturers may be due to the small size of job satisfaction's effect on OCBI.

It is worth noting that our aggregate-level results were consistent with the empirical studies we reviewed in our literature review section (e.g., Machado-Taylor et al. (2017), Sledge et al. (2008), Dharma (2018), Ilies et al. (2009), and Grisaffe et al. (2016)). Also, we observed similar effects based on the data from the Malaysian higher education. Nevertheless, one of the effects (the effect of job satisfaction on OCBI) based on the data from the Japanese higher education was non-significant. Overall, our findings suggest that the empirical findings in previous research on the nexus of satisfaction- motivation-OCBI can be mainly observed during the COVID-19 pandemic.

## Practical implications

Our findings have a wide range of practical implications. Motivation is a major drive in pushing an individual to act and perform specific tasks and actions (Sharma & Srivastava, 2019). Assuming that the appropriate supports are in place, well-motivated academic staff can develop a national and international reputation for themselves and their universities in professional areas, research, and publishing (Capelleras, 2005).

Our findings at both the aggregate and the country levels indicated that academic motivation was considerably stronger than job satisfaction for predicting OCBI. Therefore, policies seeking to enhance academic motivation through, for example, the provision of networking and professional development opportunities, as well as enhancing lecturers' social status and providing more supportive work environments (Ansyari et al., 2019), should be prioritized if improvement in lecturers' OCBI is considered to be paramount.

Similarly, although the effects of job satisfaction on academic motivation were sizable for both higher education contexts, the mediation mechanism showed that the effects of job satisfaction were mainly transmitted to OCBI through academic motivation, which may have policy implications. For instance, it appears that perceptions of influence on departmental decision-making processes lead to increased job satisfaction among faculty members (Bentley et al., 2015). Hence, from our model, inviting lecturers to attend in-group decision-making actions will directly increase their academic motivation and indirectly enhance their OCBI. Additionally, as shown by Castellacci and Viñas-Bardolet

(2020), ceteris paribus, academics in European countries with a permanent contract are on average more satisfied with their position than those who are employed temporarily. Thus, given the role of job satisfaction in our model, it seems that policymaking regarding selection, recruitment, human resources (especially with respect to revisiting contract arrangements), and improving the working environment are factors that can be pursued to maintain or increase academics' job satisfaction to an acceptable level over the long term. It should be noted that satisfied lecturers are proud of their institution and unsatisfied lecturers may think of leaving it and even the academic world entirely; alternatively, they may withdraw or disengage from their academic community (Hagedorn, 2000).

There is evidence that stressors reduce job satisfaction in academic settings. For instance, work–life conflict, widely apparent during the pandemic, has been shown to reduce academics' job satisfaction in Germany (Dorenkamp & Ruhle, 2019). Therefore, we recommend developing and implementing relevant online psychological training and consultation programs for academics working mainly from home to ensure that they have all the knowledge that they need, especially regarding stress management, conflict, and work–life balance. Additionally, as O'Meara et al. (2019) reported, national surveys have for decades indicated academics' dissatisfaction with the distribution of labor in their departments (especially women and underrepresented academic staff). Given the importance of job satisfaction in our model, we recommend developing policy to enhance equality of labor among academics and thereby their job satisfaction and, in turn, their motivation and OCBI.

Finally, our group-specific results showed that gender and tenure were not significant predictors for academic motivation and OCBI in the Japanese and Malaysian higher education systems. Therefore, developing training programs or creating policies to enhance lecturers' academic motivation and OCBI should be pursued irrespective of the lecturers' gender or tenure status. Nevertheless, the results differed for age. Although training programs or policies to enhance academic motivation and OCBI among Japanese lecturers could be implemented regardless of lecturers' age, we observed that in Malaysia, age was seen to positively affect lecturers' academic motivation and OCBI. Consequently, the policies to enhance Malaysian younger and older lecturers' academic motivation and OCBI should be different.

## Conclusion

In this study, using data collected from academics affiliated with the Malaysian and Japanese universities during the COVID-19 pandemic, we tested the nexus of job satisfaction–academic motivation–OCBI. It was also considered desirable to compare academics from the two countries in terms of the effects presented in our model. To answer our research questions, we applied PLS-SEM analysis (Ghasemy, Teeroovengadum, et al., 2020b). Our results at both the aggregate and country levels showed that (1) job satisfaction was a strong predictor of academic motivation, (2) academic motivation was a strong predictor of OCBI, (3) the effect of job satisfaction on OCBI was mainly transmitted via academic motivation, and (4) the differences in the relationships between the latent variables in our model for the Malaysian and Japanese lecturers were not statistically significant. Among the lessons learned is that the mediational processes, which explain how things take place, should receive more focus and be scrutinized in empirical studies, especially in behavioral and attitudinal studies in educational contexts. Put differently, our study shows that merely investigating direct effects may not be sufficient to provide much insight into the nature of the phenomenon under study. We also observed that the relationship between academic motivation and OCBI was nonlinear based on the data from the Malaysian sample and explained this phenomenon from both theoretical and practical/policy perspectives. Additionally, we observed that age plays an important role in our model, estimated using data from the Malaysian higher education system.

## Limitations and future research

Our study was not without limitations. First, the Japanese sample was small relative to the sample from Malaysia. Although we did not face any issues with respect to sample size adequacy or statistical power to estimate our model, we recommend using larger samples, especially in multigroup analyses. Second, although our aggregate-level $PLS_{predict}$ analysis showed that the model's out-of-sample predictive power was moderate, the examination of the group-specific $PLS_{predict}$ results showed that the predictive power based on the data from the Japanese sample was not satisfactory. In other words, although our model worked well from both the explanatory and predictive perspectives at the aggregate-level as well as in the Malaysian context, it only worked well from an explanatory perspective for the Japanese scholars.[1] Finally, we recommend pursuing longitudinal studies (Little, 2013), using advanced methods, such as latent growth curve modeling (Duncan et al., 2006) and cross-lagged panel modeling (Mulder & Hamaker, 2020; Zyphur et al., 2020), as well as estimating longitudinal models using the state-of-the-art PLSe2 methodology (Bentler & Huang, 2014; Ghasemy, 2022; Ghasemy, Hazri, et al., 2021b) in future research in this area.

[1] In the interest of space, we did not report the group-specific PLSpredict results.

**Supplementary Information** The online version contains supplementary material available at https://doi.org/10.1007/s12564-022-09757-6.

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**Data availability** Our dataset to estimate the final model was published on Harvard Dataverse and is accessible via https://doi.org/10.7910/DVN/ILLJEW.

## Declarations

**Conflict of interest** The authors declare no conflict of interest of any kind related to this article.

**Ethical approval** The performed procedures were in accordance with the 1964 Helsinki Declaration and its later amendments, or comparable ethical standards. No consent was required, since the participation was voluntary, information was anonymized, and the paper does not include images that may identify the person.

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