



Since January 2020 Elsevier has created a COVID-19 resource centre with free information in English and Mandarin on the novel coronavirus COVID-19. The COVID-19 resource centre is hosted on Elsevier Connect, the company's public news and information website.

Elsevier hereby grants permission to make all its COVID-19-related research that is available on the COVID-19 resource centre - including this research content - immediately available in PubMed Central and other publicly funded repositories, such as the WHO COVID database with rights for unrestricted research re-use and analyses in any form or by any means with acknowledgement of the original source. These permissions are granted for free by Elsevier for as long as the COVID-19 resource centre remains active.



When telecommuters are willing to be good soldiers during COVID-19

Ming-Chang Lin^a, Cheng-Feng Cheng^{b,*}, Chien-Che Huang^a

^a Department of Leisure and Recreation Management, National Taichung University of Science and Technology, Taiwan

^b Department of Business Management, National Taichung University of Science and Technology, Taiwan

ARTICLE INFO

Keywords:

Organizational citizenship behavior
Happiness
Work-family conflict
Job performance

ABSTRACT

COVID-19 pandemic can be regarded as a game changer, it has changed the way people work or live. How has the telecommuter's psychology changed under coronavirus? Accordingly, this study contributes to clarify the relationships among telecommuter's organizational citizenship behavior, happiness, work-family conflict, and job performance under COVID-19. The first purpose of present study is to evaluate the impacts of telecommuter's organizational citizenship behavior. To explore the roles of happiness and work-family conflict, the second purpose is to explore the relationships among the organizational citizenship behavior, happiness, and work-family conflict. In addition, the influences of telecommuter's happiness and work-family conflict on job performance deserve further consideration. To assess the applicability of this conceptual model, this study develops a questionnaire and distributed it to a sample consisted of telecommuters of firms. The statistical techniques adopt contain descriptive statistics, factor analysis, reliability analysis, structural equation modeling (SEM), and fuzzy set qualitative comparative analysis (fsQCA). Based on the empirical analyses, telecommuter's extra-role organizational citizenship behavior enhances in-role job performance, telecommuter's organizational citizenship also associates with happiness and work-family conflict. Both happiness and work-family conflict associate with the job performance. In addition, there are three causal configurations found to be sufficient for high job performance.

1. Introduction

World Health Organization (2021) indicates that there have been more than 228 million confirmed cases of coronavirus disease (COVID-19), including 4.69 million deaths as of September 2021. COVID-19 can be regarded as a game changer, it has changed business activities, working methods, and even the interaction between telecommuters and family members. Many employees face the need to use computers or more technology to work from home and become telecommuters. What changes will happen to telecommuters' psychology or behavior during COVID-19. According to resource-based theory, strategic human resource management is primary weapon for several firms or managers to survive in the dynamic competitive environment. Barney (1991) contends that while resources are valuable and the main resource cannot be imitated or replaced.

In general, employee generate and accumulate the knowledge, and then further utilize this knowledge to influence productive behavior. In addition, the effectiveness of employee's psychology or behavior has been widely concerned by academics and practitioners (e.g., Adil,

Kausar, Ameer, Ghayas, & Shujja, 2021; Bolino, Harvey, & Bachrach, 2012; Harris, Harris, Carlson, & Carlson, 2015; Mamman, Kamoche, & Bakuwa, 2012; Zhao & Zhou, 2021). Compared with workplaces in previous decades, telecommuters now face more psychological burdens caused by technological overload (Harris et al., 2015). Bolino et al. (2012) indicates that researchers try to better understand employee behavior such as helping others, tolerating inconveniences, or volunteering for additional responsibilities that improve organizational efficiency by developing and maintaining the social and psychological atmosphere of the organization in the past two decades. Adil et al. (2021) focuses on explore relationships among organizational socialization, knowledge sharing, role clarity, and organizational citizenship behaviors. Zhao and Zhou (2021) explores the relationship of organizational citizenship behavior for the environment and socially responsible human resource management. Mamman et al. (2012) further suggests that employees exhibit ideal behaviors that contribute to the success of the organization when organizations manage their diverse employees effectively.

In the context of telecommuter behavior, researchers in the field of

* Corresponding author., . No.129, Sec. 3, Sanmin Rd, North Dist, Taichung City, 40401, Taiwan.

E-mail addresses: mclin@nutc.edu.tw (M.-C. Lin), chengcf@nutc.edu.tw, cheng.cf@msa.hinet.net (C.-F. Cheng), charles0928@nutc.edu.tw (C.-C. Huang).

organizational behavior or human resource management pay attention to telecommuters' out-of-role behavior and in-role behavior. The issue of extra-role behaviors of telecommuter has been primarily concerned with the organizational citizenship behavior (e.g., Bolino et al., 2012; Chiang & Hsieh, 2012; Kim & Park, 2020; Ko, Moon, & Hur, 2018; Lilly, 2014; Mamman et al., 2012; Sun, Jiang, Hwang, & Shin, 2018; Zhao & Zhou, 2021). Early organizational citizenship behavior (OCB) research focuses on its antecedents and indicated key factors or determinants leading to successful engage in OCB, and then the subsequent work focused on the consequences of OCB (Bolino et al., 2012). Lilly (2014) proposes that OCB could be directed toward an individual or toward the organization, and different types of OCB may have different consequences. OCB refers to the voluntary behaviors of individual organization members that are beneficial to the entire organization (Kim & Park, 2020). OCB has quickly become one of the most widely studied topics in applied psychology or organizational behavior, and as the organizational environment continues to become more uncertain and interdependent, OCB is particularly important. OCB can be regarded as the discretionary behavior of employees, which can promote the operation of employees within the organization. (Ko et al., 2018).

Chiang and Hsieh (2012) suggests that encourage employees to demonstrate OCB and understand the influencing factors of OCB. In academia and practice, OCB is an important research topic, and even formal rewards or incentives cannot inspire OCB. Mamman et al. (2012) proposes that extra-role behavior, i.e. OCB, is critical to organizational effectiveness because managers cannot foresee all emergencies that may lead to employee performance.

As for the in-role behaviors of employee, research has focused on job performance (e.g., Alessandri, Filosa, Eisenberg, & Caprara, 2021; Hewagama, Boxall, Cheung, & Hutchison, 2019; Jiang et al., 2012; Jung, Bozeman, & Gaughan, 2017; Miao, Humphrey, & Qian, 2018; Palomäki et al., 2021; Schreurs, van Emmerik, Günter, & Germeys, 2012; Stamolampros, Korfiatis, Chalvatzis, & Buhalis, 2019). Researchers have traditionally thought of job performance as task performance that employee effectiveness with regard to those activities can contribute to their organization (Miao et al., 2018). Job performance and satisfaction are key factors in attracting and retaining skilled labor (Stamolampros et al., 2019). Jiang et al. (2012) indicates that job performance of employee is a key proximal outcome in the human resource performance linkage and is also reasonable results directly related to the degree of internal matching between human resource practices. Hewagama et al. (2019) argues that hotel front-line employees respond to service failures to improve work performance and job satisfaction. Jung et al. (2017) proposes that lower absenteeism, greater work commitment, job performance, job retention predicts higher job satisfaction.

Schreurs et al. (2012) suggests that employees are usually engaged in on-the-job performance as the result and behavior of those officially required to directly serve organizational goals. These studies provide valuable contributions to knowledge of employee extra-role behaviors and in-role behaviors. However, the mechanisms of the relationship between organizational citizenship behavior and employee's job performance have not yet been explored in detail. OCB is initiated by employees and can improve the overall effectiveness of organizational functions, but the formal organizational reward system does not recognize this behavior (Chiang & Hsieh, 2012). Why do employee engage in extra-role behaviors or organizational citizenship behavior? Classical economics assume that people always act in their own interests (Cheng, Lai, & Wu, 2010). That is, the employee will engage in organizational citizenship behavior only if those OCB can enhance his/her utility, happiness, or performance. Specifically, if OCB can stimulate employees' work performance, employees will tend to devote themselves to OCB. Therefore, the main task of managers is to understand how to engage employees or satisfy employees to perform OCB activities. Based on these regards, this study attempts to explore the effect of OCB on employee's job performance in order to reveal the critical role of human resource.

According to the employee's prospective, they may ask themselves: Is it worth or happiness to adopt OCB? Does OCB give rise to any benefits? Does this OCB involve costly? Thus, the intermediate variables, which affect the relationship between OCB and job performance, have become a focal issue for both academics and practitioners. Happiness and work-family conflict of employee seem as the primary sources of job performance. Happiness is related to fulfilling social relationships, and more and more people realize the important aspects of measuring personal happiness (Binder & Broekel, 2012). Many people tend to believe that happiness ultimately makes life worth living, and that a good life is the same as a happy life (Lemay, Doleck, & Bazelais, 2019). Happiness is a better indicator of a country's welfare than many traditional measures. Therefore, political welfare goals should be formulated from the perspective of happiness. Chiu, Hsieh, Yeh, and Kuo (2011) further proposes that happiness is probably one of the most important goals pursued by most people. It reveals the positive evaluation of how much people like their lives.

In addition, work-family balance has been identified as a major issue in modern society, and work-family conflict has become an important field of individual differences research, as a form of inter-role conflict between the competitive needs of work and family roles (Biggart, Corr, O'Brien, & Cooper, 2010). Lallukka et al. (2013) suggests that work and family are two key domains of life among working populations, and Casper et al. (2011) indicates that the growth of dual career couples working in multinational companies has also led to work-family conflicts in many parts of the world. Hauff, Richter, and Tressin (2015) argues that job demands, workload, and work-family conflict are important indicators of employees' work. Lamberta, Minor, Wells, and Hogan (2016) shows that Job stress can be harmful overtime, leading to increased conflict with family. Liu and Low (2011) further proposes that the field of work-family research has become a subject of much concern in organizational behavior research because it has been shown to cause undesirable results related to employees' work life, family life, general health and well-being. Based on these regards, to capture the nature of employee behavior, it is necessary to explore the impacts of intermediate variables between employee's OCB and job performance. Based on these regards, this study further investigates the influences of employee's happiness and work-family conflict on job performance. In short, this article attempts to clarify the relationships among employee's OCB, happiness, work-family conflict, and employee's job performance. Happiness and work-family conflict are both regarded as intermediary variables that may complicate but help to identify the relationships between OCB and job performance.

2. Literature review

Since organizational citizenship behavior is the major source that can create the firm's competitive advantage or organizational effectiveness, the managers must understand interrelationship between telecommuter's OCB and job performance. The existing literature in organizational behavior or human resource management has expressed a strong interest in extra-role behaviors and in-role behaviors of telecommuter. Several studies explore the relationship between telecommuter's extra-role performance (i.e., organizational citizenship behavior) and in-role performance (i.e., job performance) to explain why do telecommuter engage in extra-role behaviors or organizational citizenship behavior (e.g., Bolino et al., 2012; Chiang & Hsieh, 2012; Rubin, Bommer, & Bachrach, 2010; Teresa, Yasmina, & Sangwon, 2020; Tremblay, 2021; Wei, Qu, & Ma, 2012; Zhu, Newman, Miao, & Hooke, 2013)?

Recently, OCB research has focused on the potential consequences of OCB, showing that they have a positive impact on telecommuter performance ratings and telecommuter reward decisions (Bolino et al., 2012). Chiang and Hsieh (2012) evaluates the causal relationship between employees' perception of organizational support, psychological empowerment, organizational citizenship behavior, and job

performance, and show that organizational citizenship behavior has a positive impact on job performance. They further pointed out that when employees give extra attention and effort beyond the job description, human and capital resources are most effectively used, which can improve the overall work performance of employees. [Wei et al. \(2012\)](#) strictly proposes that the major employee's motivation of organizational citizenship behavior is to improve his or her own performance outcome. [Ye et al. \(2012\)](#) measures an employee's overall performance incorporate both in-role performance and organizational citizenship behavior performance, and proposes organizational citizenship behavior is significantly associated with in-role performance. [Zhu et al. \(2013\)](#) suggests that organizational citizenship behavior focuses on measuring individual behaviors, work performance directly measures personal work effectiveness, and organizational citizenship behavior can improve employees' work performance. [Rubin et al. \(2010\)](#) indicates that employee performance must be including both in-role and extra-role dimensions, and the extra-role dimension (i.e., organizational citizenship behavior) is associate with in-role dimension (i.e., task-based job performance). The scope of behavior includes the discretion of the organization, that is, organization-oriented civic behavior and direct supervisor, that is, the supervisor-oriented civic behavior is associated with the required form (i.e., job-based performance or role behavior). [Teresa et al. \(2020\)](#) proposes that OCB contributes indirectly to organizational effectiveness and then supports job performance. [Tremblay \(2021\)](#) explores dynamic relationship associate with OCB and suggests OCB may affect the performance. Accordingly, the employee's organizational citizenship behavior should be a primary way to enhance job performance as discussed. Based on these arguments, this research proposes the following hypothesis to explore interrelationship between telecommuter's OCB and job performance.

H1. Telecommuter's organizational citizenship behavior can enhance job performance.

In the context of telecommuter's organizational citizenship behavior, previous studies have formally define organizational citizenship behavior as the telecommuter's voluntary extra-role behavior, including behaviors directed to individuals (i.e., OCBI contains altruism and courtesy) and those directed to the organization (i.e., OCBO contains civic virtue, sportsmanship, and conscientiousness) that can improve the organizational effectiveness (e.g., [Adil et al., 2021](#); [Bolino et al., 2012](#); [Chiang & Hsieh, 2012](#); [Kim & Park, 2020](#); [Zhu et al., 2013](#)). Several researches suggest that telecommuters' voluntary, extra-role, and non-rewarded citizenship behaviors can not recognize by the formal organizational reward system, and can influences the their emotional, psychological or affective status. Generally, when telecommuters feel more positively about their citizenship performance, they may begin to perform organizational citizenship behaviors for more self-interested reasons ([Bolino et al., 2012](#)). Telecommuters' organizational citizenship behavior can make them proud in the reflected light. [Chiang and Hsieh \(2012\)](#) shows that much research was investigated employee's psychological empowerment and noted that organizational citizenship behavior was associated with employee's personal psychological contribution and welfare. [Wei et al. \(2012\)](#) indicates that employee sending or conducting organizational citizenship behavior purpose is to gain long term payback from either others' similar organizational citizenship behaviors or mutually beneficial atmosphere around him, and then can create the positive feelings, individual well-being, or happiness.

In addition, [Chiang and Hsieh \(2012\)](#) proposes that organizational citizenship behavior can be classified into the five dimensions including contains altruism, courtesy, civic virtue, sportsmanship, and conscientiousness. They further pointed out that altruism means taking the initiative to help members of the organization solve problems; in addition to observing organizational rules, conscientious representatives exceed minimum requirements through hard work; sportsmanship is to abide by organizational rules, tolerate imperfect situations without

complaining; polite representatives to avoid work problems, remind and notify other colleagues in advance; civic virtue seems to remain focused and proactive when participating in organizing activities. Accordingly, the altruism, courtesy, civic virtue, sportsmanship, and conscientiousness citizenship behavior may lead telecommuter generates feeling about life of meaning, pleasure, or engagement.

Comparatively, since telecommuter's organizational citizenship behavior is the telecommuter's voluntary extra-role behavior, telecommuter may require to spend more time and energy to perform altruism, courtesy, civic virtue, sportsmanship, or conscientiousness citizenship behavior. [Bolino et al. \(2012\)](#) denotes that workers working on OCBs that require a lot of effort, involve a few people, or are highly valued may start to slip. [Sun, Chow, Chiu, and Pan \(2013\)](#) indicates that employees' organizational citizenship behavior for individuals, including willingness to spend time helping others with work-related issues, adjusting work schedules to accommodate other employees' vacation requirements, and giving up time to help others with or without work. [Wei et al. \(2012\)](#) also suggests that employee's organizational citizenship behavior involve work overtime when needed. Telecommuter's organizational citizenship behavior as extra effort that beyond what is normally expected. However, several studies indicate that telecommuter spend more time and energy to perform organizational citizenship behavior may cause potential work-family conflict, especially in work interferes with family (e.g., [Alessandri et al., 2021](#); [Hewagama et al., 2019](#); [Lallukka et al., 2013](#); [Lamberta et al., 2016](#); [Liu & Low, 2011](#); [Zhao & Namasivayam, 2012](#); [Zhao, Qu, & Ghiselli, 2011](#)).

Working time reduces the actual time for family involvement ([Biggart et al., 2010](#)). [Liu and Low \(2011\)](#) suggests that work-family conflicts lead to conflicts because these two areas of life compete for the limited time and energy resources that individuals have. [Michel, Mitchelson, Pichler, and Cullen \(2010\)](#) indicates that work-family conflict can be decomposed into time-based conflict, pressure-based conflict and behavior-based conflict, making time commitment (e.g., hours worked), strain (role conflict and ambiguity), and behaviors required by one's work (family) role may compete with expectations and pressures from one's family (work) role. The conflict and time pressure between work and family in society are increasing, and time pressure is associate with work-family conflict. In other words, people who are busy or feel busy, taking into account both work and family roles may be more difficult to contact. [Zhao et al. \(2011\)](#) shows that when an employee's work and family situation includes spending time with his family in his spare time, the organization supports work-family balance, and working hours are flexible to handle affairs in all areas of life, employees work hard and perform well. However, telecommuters perform organizational citizenship behavior may lead to work-family imbalance. Based on these regards, telecommuter perform organizational citizenship behavior may influences his/her happiness and work-family conflict. Accordingly, this study develops the following hypotheses to explore interrelationship among telecommuter's organizational citizenship behavior, happiness, and work-family conflict.

H2. Telecommuter's organizational citizenship behavior can enhance happiness.

H3. Telecommuter's organizational citizenship behavior can influence work-family conflict.

In the field of job performance research, several researchers have stressed a great interest in the interrelationships among telecommuter's happiness and work-family conflict. The impacts of telecommuter's happiness and work-family conflict on job performance have been illustrated by many previous studies (e.g., [Binder & Broekel, 2012](#); [Hewagama et al., 2019](#); [Jung et al., 2017](#); [Lallukka et al., 2013](#); [Wang, Dou, Li, Zhang, & Guan, 2021](#); [Zhao & Namasivayam, 2012](#); [Zhao & Zhou, 2021](#)). Previous studies generally define employee's happiness as a psychological well-being that associate with life of meaning, pleasure, and engagement. Several studies focus on the relationship between

individual happiness and job performance. For instances, Binder and Broekel (2012) indicates that happiness has positive influence on an individual performance. Person's well-being or individual behavior is to a high extent dependent on the degree of happiness.

On the other hands, work-family conflicts may affect personal attitudes and behaviors, and lead to a series of counterproductive results, including depression, performance decline, and turnover (Zhao & Namasivayam, 2012). Michel et al. (2010) proposes that the work-family conflict revolves around the idea that an increase in role performance in the work field will lead to attention to the role, thereby reducing role performance in the family field. When work-family conflict from work-to-family or from family-to-work occur, telecommuter may not have demonstrated the ability to work. Generally speaking, work-family conflict may harm telecommuter's job performance. Qu and Zhao (2012) suggests that work-family conflict (WFC) refers to a form of inter-role conflict caused by incompatible role pressures between work and family fields. WFC is the cause of high labor mobility, low morale, and low final performance. Zhao et al. (2011) indicates that employees' work-family conflicts can affect their subjective well-being or performance. Lallukka et al. (2013) proposes that work-family conflict contain two separate dimensions, family to work conflicts and work to family conflicts that affect employee's work performance. Accordingly, both telecommuter's happiness and work-family conflict may influences his/her job performance. Based on these regards, this study develops the following hypotheses to explore interrelationship among telecommuter's happiness, work-family conflict, and job performance.

H4. Telecommuter's happiness can enhance job performance.

H5. Telecommuter's work-family conflict can influence job performance.

3. Empirical research

Conceptual framework and structural measurement of research constructs, such as telecommuter's organizational citizenship behavior, happiness, work-family conflict, and job performance. The survey questionnaire items are developed in the following stages. First, integration of previous studies and theories are made to formulate the key components of telecommuter's organizational citizenship behavior. This study uses telecommuter's organizational citizenship behavior, happiness, work-family conflict, and job performance as the research as its variables. Second, participants had asked to rate the relevance of each item to their company for four research constructs on a seven-point Likert scale, anchored by "strongly disagree" to "strongly agree".

3.1. Measure development

Previous research relating to the construct of telecommuter's organizational citizenship behavior (e.g., Adil et al., 2021; Alessandri et al., 2021; Chiang & Hsieh, 2012; Ko et al., 2018; Rubin et al., 2010; Sun et al., 2013) are review to develop our empirical measures. Accordingly, the telecommuter's organizational citizenship behavior as telecommuter's behaviors that are voluntary or extra-role, non-rewarded, and can enhance the overall organizational effectiveness that including behaviors directed to individuals (i.e., OCBI contains altruism and courtesy) and those directed to the organization (i.e., OCBO contains civic virtue, sportsmanship, and conscientiousness). Based on the Alessandri et al. (2021), Chiang and Hsieh (2012), Sun et al. (2013), and Wei et al. (2012) this study measurement contains 8 items assessing the extent to which telecommuter's individual-based and organization-directed citizenship behaviors. Based on previous research relating to the construct of telecommuter's happiness (Chiu et al., 2011), this study adopts 8 items for telecommuter's happiness, assessing the extent to which the degree of telecommuter's overall positive balance of pleasure over pain associate with life of meaning, pleasure, and engagement. Previous research relating to the telecommuter's work-family conflict (e.g.,

Jawahar et al., 2012; Lallukka et al., 2013; Zhao & Namasivayam, 2012), this study defines telecommuter's work-family conflict as a form of inter-role conflict that associates with the degree of work-family imbalance. Eight questionnaire items based on Biggart et al. (2010), Casper et al. (2011), and Lallukka et al. (2013). Accordingly to previous research relating to the constructs of telecommuter's job performance (e.g., Li, Sanders, & Frenkel, 2012; Schreurs et al., 2012), this study defines telecommuter's job performance as overall telecommuter's in-role behavioral contribution or task-based job performance associate with individual task proficiency, adaptivity, and proactivity.

3.2. Sampling design

The main purpose of this study is to evaluate job performance by integrating the perspectives of telecommuter's organizational citizenship behavior, happiness, and work-family conflict. To evaluate the applicability of this conceptual model, this research developed a questionnaire and distributed it to a sample of company telecommuters. In order to obtain the response rate, this study issued a reminder about three weeks to one month after they agreed to participate. Eventually, this research obtained a final valid sample of 295 respondents from telecommuters. Table 1 represents the basic attributes of the respondents. 162 respondents were male (more than 54%), 219 respondents were married (more than 74%), 208 respondents were 36–45 years old (more than 70%), 189 respondents had college education (more than 64%), and about 73% of the respondents were 6–15 years of seniority.

4. Results

This study contributes to clarify the relationships among telecommuter's organizational citizenship behavior, happiness, work-family conflict, and job performance. Table 2 shows reliabilities and validities for the research constructs. Reliability of measurement items verified by Cronbach's alpha coefficient. According to Hair, Black, Babin, and Anderson (2019), Cronbach's alpha values for all research constructs are greater than 0.82 and these high alpha values indicate that the research structure has a high degree of internal consistency between research items. The validity of the constructs measured by the explained variance of each factor from factor analysis. The cumulative percentage of total variance extracted for all research constructs are greater than 0.74. These results indicating that the reliabilities and validities of these constructs are acceptable.

In order to evaluate the adaptability of the model, this study uses

Table 1
Characteristics of the respondents.

Characteristics	Frequency	Percentage (%)	Cumulative (%)
Gender	Male	162	54.92
	Female	133	45.08
Marriage	Single	76	25.76
	Married	219	74.24
Age	Less than 30 Years Old	13	4.41
	31–35 Years Old	44	14.92
	36–40 Years Old	96	32.54
	41–45 Years Old	112	37.97
	More than 46 Year Old	30	10.17
	Education	Senior High School	9
	Vocational School	18	6.10
	College	189	64.07
	Graduate School	79	26.78
Seniority	Less than 5 Years	34	11.53
	6–10 Years	121	41.02
	11–15 Years	94	31.86
	More than 16 Years	46	15.59

Table 2
Results of factor analysis.

Constructs	Number of Items	Reliability	Convergent Validity
Organizational citizenship behavior	8	0.872	0.786
Happiness	8	0.824	0.759
Work-family conflict	8	0.901	0.839
Job performance	6	0.881	0.746

structural equation modeling (SEM) for path analysis. Regarding path analysis, we regard the theoretical model as the SEM implemented in the AMOS 20 system. The results indicated that the chi-square for the tested model is 263.12 with 145 degrees of freedom, which is not significantly different from the measurement model, and the remaining fit indices are little changed from the confirmatory model. Furthermore, an excellent overall fit of the measurement model was suggested by goodness-of-fit index (GFI = 0.955 > 0.9), adjust goodness of fit index (AGFI = 0.927 > 0.9), and normed fit index (NFI = 0.939 > 0.9). Residual index such as root mean square error of approximation (RMSEA = 0.025 < 0.05). based on Hair et al. (2019), these results suggest an adequate fit of the proposed model to the data. In other words, the integrated analysis models established in this research matched well with the data reference of goodness of fit. Fig. 1 indicates that the path coefficients of telecommuter’s organizational citizenship behavior influences on job performance, happiness, and work-family conflict are 0.361** (i.e., H₁ was supported, P < 0.01), 0.395* (i.e., H₂ was supported, P < 0.05), and 0.128* (i.e., H₃ was supported, P < 0.05) respectively. The path coefficients of happiness and work-family conflict influences on job performance are 0.372** (i.e., H₄ was supported, P < 0.01) and -0.134** (i.e., H₅ was supported, P < 0.01), respectively. In other words, telecommuter’s organizational citizenship behavior can enhance their job performance, happiness, and work-family conflict. Furthermore, happiness can enhance job performance, but work-family conflict may reduce job performance.

SEM can analyze the net effect between variables and test each hypothesis. In order to revisit relationships among telecommuter’s organizational citizenship behavior, happiness, work-family conflict, and job performance, this study further combine relevant antecedents (i.e., organizational citizenship behavior, happiness, and work-family conflict) into various causal recipes to explore the configurations for achieving high job performance by using fsQCA (fuzzy set qualitative comparative analysis).

In order to transform antecedents (i.e., organizational citizenship behavior, happiness, and work-family conflict) and job performance into fuzzy variables, it is necessary to calibrate them. According to Cheng and Chen (2021), Harms, Alfert, Cheng, and Kraus (2021), Ragin (2017), this study sets the original values of 7.0, 4.0, and 1.0 from seven-point Likert scales to correspond to the full membership (95%), cross-over anchors (50%), and full non-membership (5%), respectively. Based on user’s guide of fsQCA (Ragin, 2017), there are three causal configurations found to be sufficient for high job performance with high levels of

solution coverage (i.e., 0.78) and consistency (i.e., 0.93) (see Table 3 and Fig. 2). Configuration A indicates that first sufficient condition of high level of job performance is combination of organizational citizenship behavior present, happiness present, and work-family conflict absent. In other words, the combination of high levels of organizational citizenship behavior and happiness with low level of work-family conflict can achieve high job performance. Configuration B shows that when telecommuter has high level of work-family conflict, if he/she has a high degree of happiness at the same time, he/she also has the opportunity to obtain high job performance. Configuration C proposes that high levels of organizational citizenship behavior and work-family conflict can achieve high level of job performance.

5. Discussion

To revisit effectiveness of telecommuter’s organizational citizenship behavior on job performance through happiness and work-family conflict during COVID-19, empirical research based on the telecommuter’s perspective had adopted in the present study. This study extends the knowledge of telecommuter’s organizational citizenship behavior to develop the conceptual model measurement of job performance via intermediary variables, i.e., telecommuter’s happiness and work-family conflict. This study examines the intermediary roles of telecommuter’s happiness and work-family conflict by means of empirical analyses to derive several contributions. First, this study tries to evaluate the impacts of telecommuter’s organizational citizenship behavior from the telecommuter’s perspective. Second, in order to assess the fitness of the model and identify interrelationships among research variables, this study uses structural equation model (SEM) for path analysis. In order to confirm the sufficient conditions for high job performance, this study further applies fuzzy set qualitative comparative analysis (fsQCA).

According to results of SEM, telecommuter’s extra-role organizational citizenship behavior can enhances in-role job performance. This result indicates that when telecommuter perform extra-role behavior including behaviors directed to individuals (i.e., OCBI contains altruism and courtesy) and those directed to the organization (i.e., OCBO contains civic virtue, sportsmanship, and conscientiousness) improve his/her individual task proficiency, adaptivity, and proactivity. Second, telecommuter’s organizational citizenship is also associated with happiness and work-family conflict. On one hand, this result represents that when telecommuter perform extra-role behavior including behaviors directed to individuals and those directed to the organization will improve degree of telecommuter’s overall positive balance of pleasure over pain associate with life of meaning, pleasure, and engagement. On the other hand, this result also represents that when telecommuter perform extra-role behavior including behaviors directed to individuals and those directed to the organization influence work-family conflict or imbalance. Finally, both happiness and work-family conflict have associated with the job performance. This result represents that when telecommuter feels higher degree of telecommuter’s overall positive

Table 3
Results of fsQCA.

Causal conditions	Configuration A	Configuration B	Configuration C
Organizational citizenship behavior	●		●
Happiness	●	●	
Work-family conflict	○	●	●
Coverage	0.46	0.65	0.72
Consistency	0.96	0.95	0.94
Solution coverage: 0.78			
Solution consistency: 0.93			

Notes: Black circles “●” indicate the presence of causal condition. White circles “○” indicate the absence or negation of causal condition. The blank cells represent “don’t care” conditions.

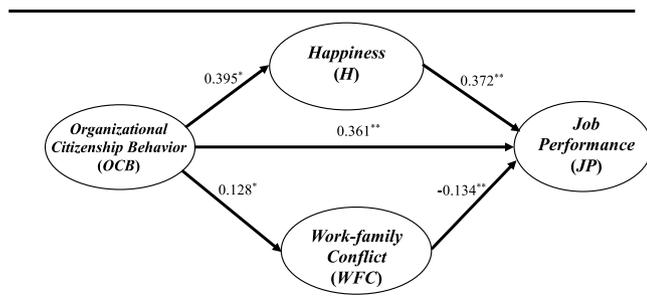
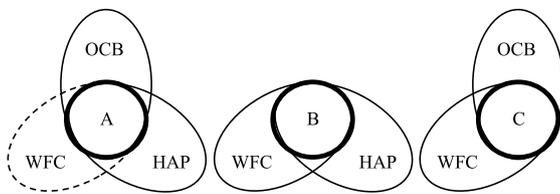


Fig. 1. Results of SEM



Notes:

OCB= Organizational citizenship behavior, HAP= Happiness, and WFC= Work-family conflict.

An ellipse with a solid line represents the presence of the condition, whereas an ellipse with a dotted line represents the absence of the condition. If a condition is irrelevant to the configuration, no ellipse is displayed.

Fig. 2. Causal paths for high job performance

Notes: OCB= Organizational citizenship behavior, HAP= Happiness, and WFC= Work-family conflict.

An ellipse with a solid line represents the presence of the condition, whereas an ellipse with a dotted line represents the absence of the condition. If a condition is irrelevant to the configuration, no ellipse is displayed.

balance of pleasure over pain associate with life of meaning, pleasure, and engagement may improve his/her individual task proficiency, adaptivity, and proactivity. Comparatively, when inter-role conflict that associates with the degree of work-family imbalance occur, work-family conflict are harm telecommuter's job performance.

The SEM results verify the net effect between every two variables, and fsQCA can further confirm sufficient conditions high job performance based on asymmetric thinking in data analysis. According to results of fsQCA, there are three causal configurations found to be sufficient for high job performance. These three configurations provide several contributing findings. First of all, happiness must exist in all three configurations. This result emphasizes that telecommuters still need to have positive emotions during COVID-19. Secondly, comparing configuration B and configuration C, we can find that organizational citizenship behavior and happiness seem to have an alternative effect. Because in the case of high work-family conflict, only organizational citizenship behavior or happiness is required to obtain high job performance.

There are some limitations and recommendations for future research based on this study. First, this research focuses on exploring the relationships among organizational citizenship behavior on job performance through happiness and work-family conflict during COVID-19. Future research can explore other related antecedents, such as personality, job satisfaction, or the environment. Secondly, this study uses questionnaires to collect raw data, and other data collection methods (e. g., interview or database) can be added in future studies. Third, the present study focuses on SEM and fsQCA. Therefore, future research can consider other statistical techniques (e.g., Analysis of variance or regression). Fourth, this study contributes to evaluate the impacts of telecommuter's organizational citizenship behavior from the telecommuter's perspective. Future studies can focus on company's perspective or a specific industry. Finally, this study mainly analyzes the period of the epidemic, and suggests that follow-up studies can compare the effects after the epidemic.

Data availability statement

The data that support the findings of this study are available from the corresponding author, Cheng, upon reasonable request.

Ethical approval statement

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Declaration of Helsinki

and its later amendments or comparable ethical standards.

Informed consent statement

Informed consent was obtained from all individual participants included in the study.

Declaration of competing interest

There are no conflicts of Interest in this study.

References

- Adil, A., Kausar, S., Ameer, S., Ghayas, S., & Shujia, S. (2021). Impact of organizational socialization on organizational citizenship behavior: Mediating role of knowledge sharing and role clarity. *Current Psychology*, 1–9. <https://doi.org/10.1007/s12144-021-01899-x>
- Alessandri, G., Filosa, L., Eisenberg, N., & Caprara, G. V. (2021). Within-individual relations of emotional, social, and work self-efficacy beliefs to organizational citizenship behaviors. *Journal of Research in Personality*, 91, Article 104073. <https://doi.org/10.1016/j.jrp.2021.104073>
- Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99–120. <https://doi.org/10.1177/014920639101700108>
- Biggart, L., Corr, P., O'Brien, M., & Cooper, N. (2010). Trait emotional intelligence and work-family conflict in fathers. *Personality and Individual Differences*, 48(8), 911–916. <https://doi.org/10.1016/j.paid.2010.02.020>
- Binder, M., & Broekel, T. (2012). Happiness no matter the cost? An examination on how efficiently individuals reach their happiness levels. *Journal of Happiness Studies*, 13(2), 621–645. <https://doi.org/10.1007/s10902-011-9283-5>
- Bolino, M. C., Harvey, J., & Bachrach, D. G. (2012). A self-regulation approach to understanding citizenship behavior in organizations. *Organizational Behavior and Human Decision Processes*, 119(1), 126–139. <https://doi.org/10.1016/j.obhdp.2012.05.006>
- Cheng, C. F., & Chen, T. C. (2021). Using fuzzy set qualitative comparative analysis for evaluating the effectiveness of relationship marketing and innovation in 3D printing medical market. *Journal of Intelligent and Fuzzy Systems*, 40(4), 7681–7690. <https://doi.org/10.3233/JIFS-189588>
- Cheng, C. F., Lai, M. K., & Wu, W. Y. (2010). Exploring the impact of innovation strategy on R&D employees' job satisfaction: A mathematical model and empirical research. *Technovation*, 30(7–8), 459–470. <https://doi.org/10.1016/j.technovation.2010.03.006>
- Chiang, C. F., & Hsieh, T. S. (2012). The impacts of perceived organizational support and psychological empowerment on job performance: The mediating effects of organizational citizenship behavior. *International Journal of Hospitality Management*, 31, 180–190. <https://doi.org/10.1016/j.ijhm.2011.04.011>
- Chiu, H. C., Hsieh, Y. C., Yeh, H. J., & Kuo, C. L. (2011). The connection between happiness and service businesses: A preliminary study. *Journal of Happiness Studies*, 12(5), 841–860. <https://doi.org/10.1007/s10902-010-9230-x>
- Hair, J. F., Black, B., Babin, B., & Anderson, R. E. (2019). *Multivariate data analysis*. Upper Saddle River, NJ: 8th Pearson Prentice Hall.
- Harms, R., Alfert, C., Cheng, C. F., & Kraus, S. (2021). Effectuation and causation configurations for business model innovation: Addressing COVID-19 in the gastronomy industry. *International Journal of Hospitality Management*, 95, Article 102896. <https://doi.org/10.1016/j.ijhm.2021.102896>
- Harris, K. J., Harris, R. B., Carlson, J. R., & Carlson, D. S. (2015). Resource loss from technology overload and its impact on work-family conflict: Can leaders help? *Computers in Human Behavior*, 50, 411–417. <https://doi.org/10.1016/j.chb.2015.04.023>
- Hauff, S., Richter, N. F., & Tressin, T. (2015). Situational job characteristics and job satisfaction: The moderating role of national culture. *International Business Review*, 24, 710–723. <https://doi.org/10.1016/j.ibusrev.2015.01.003>
- Hewagama, G., Boxall, P., Cheung, G., & Hutchison, A. (2019). Service recovery through empowerment? HRM, employee performance and job satisfaction in hotels. *International Journal of Hospitality Management*, 81, 73–82. <https://doi.org/10.1016/j.ijhm.2019.03.006>
- Jiang, K., Lepak, D. P., Han, K., Hong, Y., Kim, A., & Winkler, A. L. (2012). Clarifying the construct of human resource systems: Relating human resource management to employee performance. *Human Resource Management Review*, 22(2), 73–85. <https://doi.org/10.1016/j.hrmr.2011.11.005>
- Jung, J., Bozeman, B., & Gaughan, M. (2017). Impact of research collaboration cosmopolitanism on job satisfaction. *Research Policy*, 46(10), 1863–1872. <https://doi.org/10.1016/j.respol.2017.09.003>
- Kim, D., & Park, J. (2020). The way to improve organizational citizenship behavior for the employees who lack emotional intelligence. *Current Psychology*, 1–15. <https://doi.org/10.1007/s12144-020-01104-5>
- Ko, S. H., Moon, T. W., & Hur, W. M. (2018). Bridging service employees' perceptions of CSR and organizational citizenship behavior: The moderated mediation effects of personal traits. *Current Psychology*, 37, 816–831. <https://doi.org/10.1007/s12144-017-9565-0>
- Lallukka, T., Arber, S., Laaksonen, M., Lahelma, E., Partonen, T., & Rahkonen, O. (2013). Work-family conflicts and subsequent sleep medication among women and men: A

- longitudinal registry linkage study. *Social Science & Medicine*, 79, 66–75. <https://doi.org/10.1016/j.socscimed.2012.05.011>
- Lamberta, E. G., Minor, K. I., Wells, J. B., & Hogan, N. L. (2016). Social support's relationship to correctional staff job stress, job involvement, job satisfaction, and organizational commitment. *The Social Science Journal*, 53, 22–32. <https://doi.org/10.1016/j.sosci.2015.10.001>
- Lemay, D. J., Doleck, T., & Bazalais, P. (2019). Do instrumental goal pursuits mediate feelings of envy on Facebook and Happiness or subjective well-being? *Computers in Human Behavior*, 91, 186–191. <https://doi.org/10.1016/j.chb.2018.09.043>
- Lilly, J. (2014). The impact of justice type on organizational citizenship behavior: Do outcome favorability and leader behavior matter? *Current Psychology*, 34, 26–49. <https://doi.org/10.1007/s12144-014-9238-1>
- Li, X., Sanders, K., & Frenkel, S. (2012). How leader-member exchange, work engagement and HRM consistency explain Chinese luxury hotel employees' job performance. *International Journal of Hospitality Management*, 31(4), 1059–1066. <https://doi.org/10.1016/j.ijhman.2012.01.002>
- Liu, J. Y., & Low, S. P. (2011). Work-family conflicts experienced by project managers in the Chinese construction industry. *International Journal of Project Management*, 29, 117–128. <https://doi.org/10.1016/j.ijproman.2010.01.012>
- Mamman, A., Kamoche, K., & Bakuwa, R. (2012). Diversity, organizational commitment and organizational citizenship behavior: An organizing framework. *Human Resource Management Review*, 22(4), 285–302. <https://doi.org/10.1016/j.hrmr.2011.12.003>
- Miao, C., Humphrey, R. H., & Qian, S. (2018). A cross-cultural meta-analysis of how leader emotional intelligence influences subordinate task performance and organizational citizenship behavior. *Journal of World Business*, 53(4), 463–474. <https://doi.org/10.1016/j.jwb.2018.01.003>
- Michel, J. S., Mitchelson, J. K., Pichler, S., & Cullen, K. L. (2010). Clarifying relationships among work and family social support, stressors, and work-family conflict. *Journal of Vocational Behavior*, 76(1), 91–104. <https://doi.org/10.1016/j.jvb.2009.05.007>
- Palomäki, J., Tammi, T., Lehtonen, N., Seittenranta, N., Laakasuo, M., Abuhamdeh, S., et al. (2021). The link between flow and performance is moderated by task experience. *Computers in Human Behavior*, Article 106891. <https://doi.org/10.1016/j.chb.2021.106891>
- Qu, H., & Zhao, X. (2012). Employees' work-family conflict moderating life and job satisfaction. *Journal of Business Research*, 65(1), 22–28. <https://doi.org/10.1016/j.jbusres.2011.07.010>
- Ragin, C. C. (2017). *User's guide to fuzzy-set/qualitative comparative analysis*. Available online at: www.fsqca.com.
- Rubin, R. S., Bommer, W. H., & Bachrach, D. G. (2010). Operant leadership and employee citizenship: A question of trust? *The Leadership Quarterly*, 21, 400–408. <https://doi.org/10.1016/j.leaqua.2010.03.005>
- Schreurs, B. J., van Emmerik, I. H., Günter, H., & Germeys, F. (2012). A weekly diary study on the buffering role of social support in the relationship between job insecurity and employee performance. *Human Resource Management*, 51(2), 259–280. <https://doi.org/10.1002/hrm.21465>
- Stamolampros, P., Korfiatis, N., Chalvatzis, K., & Buhalis, D. (2019). Job satisfaction and employee turnover determinants in high contact services: Insights from Employees' Online reviews. *Tourism Management*, 75, 130–147. <https://doi.org/10.1016/j.tourman.2019.04.030>
- Sun, L. Y., Chow, I. H. C., Chiu, R. K., & Pan, W. (2013). Outcome favorability in the link between leader-member exchange and organizational citizenship behavior: Procedural fairness climate matters. *The Leadership Quarterly*, 24(1), 215–226. <https://doi.org/10.1016/j.leaqua.2012.10.008>
- Sun, Y., Jiang, H., Hwang, Y., & Shin, D. (2018). Why should I share? An answer from personal information management and organizational citizenship behavior perspectives. *Computers in Human Behavior*, 87, 146–154. <https://doi.org/10.1016/j.chb.2018.05.034>
- Teresa, A. Q., Yasmina, A. C., & Sangwon, P. (2020). The sequential relationships of hotel employees' perceived justice, commitment, and organizational citizenship behaviour in a high unemployment context. *Tourism Management Perspectives*, 35, Article 100676. <https://doi.org/10.1016/j.tmp.2020.100676>
- Tremblay, M. (2021). Understanding the dynamic relationship between career plateauing, organizational affective commitment and citizenship behavior. *Journal of Vocational Behavior*, 129, Article 103611. <https://doi.org/10.1016/j.jvb.2021.103611>
- Wang, L. X., Dou, K., Li, J. B., Zhang, M. C., & Guan, J. Y. (2021). The association between interparental conflict and problematic internet use among Chinese adolescents: Testing a moderated mediation model. *Computers in Human Behavior*, 122, Article 106832. <https://doi.org/10.1016/j.chb.2021.106832>
- Wei, X., Qu, H., & Ma, E. (2012). Decisive mechanism of organizational citizenship behavior in the hotel industry- an application of economic game theory. *International Journal of Hospitality Management*, 31(4), 1244–1253. <https://doi.org/10.1016/j.ijhm.2012.03.004>
- World Health Organization. (2021). *WHO coronavirus (COVID-19) dashboard*. <http://s://covid19.who.int>
- Zhao, X., & Namasivayam, K. (2012). The relationship of chronic regulatory focus to work-family conflict and job satisfaction. *International Journal of Hospitality Management*, 31(2), 458–467. <https://doi.org/10.1016/j.ijhm.2011.07.004>
- Zhao, X., Qu, H., & Ghiselli, R. (2011). Examining the relationship of work-family conflict to job and life satisfaction: A case of hotel sales managers. *International Journal of Hospitality Management*, 30(1), 46–54. <https://doi.org/10.1016/j.ijhm.2010.04.010>
- Zhao, H., & Zhou, Q. (2021). Socially responsible human resource management and hotel employee organizational citizenship behavior for the environment: A social cognitive perspective. *International Journal of Hospitality Management*, 95, Article 102749. <https://doi.org/10.1016/j.ijhm.2020.102749>
- Zhu, W., Newman, A., Miao, Q., & Hooke, A. (2013). Revisiting the mediating role of trust in transformational leadership effects: Do different types of trust make a difference? *The Leadership Quarterly*, 24(1), 94–105. <https://doi.org/10.1016/j.leaqua.2012.08.004>