BURNOUT AND ISOLATION AMONG FLIGHT ATTENDANTS: A TEST OF THE JOB DEMANDS-RESOURCES MODEL

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ABSTRACT

Flight attendants are typically characterized as being engaged in 'emotional labour,' which is defined as the effort, planning, and control needed to express organizationally desired emotions during interpersonal transactions. Emotional labour is always stressful and may result in negative job outcomes or health problems. Therefore, drawing on the main propositions of the JD-R model, together with the results of previous research on flight attendants, this study empirically investigates the relationships among job demands, job resources, burnout, colleague isolation, health problems and job performance. A self-administered flight attendant questionnaire is designed to collect empirical data from individuals working at Taiwanese airlines. The hypotheses model is tested using structural equation modelling (SEM). The results of this study confirm that burnout mediates the relationship between job demands and health problems, and that colleague isolation mediates the relationship between job resources and job performance. The empirical implications of the results are also discussed in detail.

Keywords: job demands-resources model, burnout, colleague isolation, job performance, flight attendants

INTRODUCTION

Emotional labour, in which the expression of organizationally desired emotions is part of one's job, has attracted increasing research interest among academics and practitioners (Zapf, 2002). Morris and Feldman (1996) define emotional labour as the "effort, planning, and control needed to express organizational desired emotion during interpersonal transactions". Flight attendants are typically characterized as engaged in such work, which may lead to increased emotional exhaustion among workers with low job autonomy, longer job tenure

and longer hours. Moreover, such work is often stressful and may result in negative job outcomes or health problems.

This is particularly important considering that psychosocial health is a crucial problem for flight attendants. The JD-R model has clearly expanded the earlier models about work-related well-being that have provided important insights into the dynamics of working conditions, individual health and burnout in the workplace (Lewig et al., 2007). With respect to organizations, high employee burnout may lead to negative organizational outcomes, such as job dissatisfaction, low organizational commitment, low job performance, and increased employee turnover (Schaufeli & Bakker, 2004; Bakker, Van Emmerik, & Euwema, 2006).

Previous studies have shown that lack of support may result in increased employee perceptions of organizational isolation (Challagalla, Shervani, & Huber, 2000; Marshall, Michaels, & Mulki, 2007). Further, feelings of isolation contribute to various individual health problems (Nelson, & Quick, 1985) and low job performance in the service industry (Kirkman et al., 2002; Wiesenfeld, Raghuram, & Garud, 2001; Mulki et al., 2008). The work-related isolation of flight attendants is expected because flight attendants are unable to maintain regular social relationships either at home or at work (Ballard et al., 2004). However, little quantitative research has been conducted that directly addresses the problem of professional isolation among flight attendants, let alone the relationship between professional isolation and performance at work.

High employee burnout and professional isolation are particularly costly for organizations and individuals. From both a theoretical and practical point of view, therefore, a better understanding of burnout and professional isolation among flight attendants and the relationships between the antecedents and consequences of these deserves more attention. Drawing on the main propositions of the JD-R model, together with the results of previous research on flight attendants, this study empirically investigates the relationships among job demands, job resources, burnout, isolation, health problems and job performance based on a sample of Taiwanese flight attendants. Understanding the interrelationships among these variables may provide more insights into effective burnout and isolation management policies, specifically with regard to flight attendants.

LITERATURE REVIEW

Burnout and job outcomes

Burnout is treated as a consequence deriving from stressful work conditions (e.g., excessive work demands), and is a syndrome consisting of feelings of emotional exhaustion, depersonalization and a lack of professional accomplishment (Maslach, Schaufeli, & Leiter, 2001). Previous studies indicate that exhaustion and cynicism are the most crucial components of burnout for workers (Maslach et al., 2001; Lewig et al., 2007), and so in this work burnout is regarded as employee perceptions of exhaustion and cynicism.

High employee burnout is costly for both organizations and individuals, as it may lead to negative work-related outcomes such as job dissatisfaction, low organizational commitment, low productivity and quality, low job performance, and high employee turnover. With respect

to individuals, burnout could impair the physical and psychological health of employees (Schaufeli & Bakker, 2004; Hakanen, Bakker, & Schaufeli, 2006; Bakker, Van Emmerik, & Euwema, 2006; Pienaar, & Willemse, 2008).

However, research has shown an inconsistent relationship between burnout and job performance. Specifically, some studies support the notion of a negative relationship between the two (Babakus, Yavas, & Ashill, 2009), while others find no or even a positive relationship between them (Simmons, Gooty, Nelson, & Little, 2009; Keijsers, Schaufeli, Le Blanc, Zwerts, & Reis-Miranda, 1995). The majority of related studies use self-reported surveys as an instrument, and focus on formal performance appraisals, including meeting organizational objectives and effective functioning. However, Bakker, Demerouti and Verbeke (2004) argue that burnout has negative effects on both official and discretionary behaviours., These behaviours have been recognized as operating in two directions, namely in-role and extra-role performance, while the latter is also called organizational citizenship behaviour. Specifically, in-role performance refers to "those officially required outcomes and behaviours that directly serve the goals of the organization" (Motowidlo & Van Scotter, 1994), while extra-role performance refers to "those discretionary behaviors on the part of an employee that are believed to directly promote the effective functioning of an organization, without necessarily directly influencing a person's target productivity" (Podsakoff & MacKenzie, 1994). Although flight attendants are recognized as engaged in typically emotional labour, there are few studies that investigate both the organizational and individual consequences of burnout with regard to flight attendants and their work environments.

Colleague isolation and job outcomes

Although the issue of perceived isolation has been widely discussed, examinations of professional isolation are relatively limited. Marshall, Michaels, and Mulki (2007) define professional isolation as an individual's feelings of isolation from others at work. Based on this definition, professional isolation can be classified into two dimensions, i.e. company and colleague isolation. Specifically, company isolation is employee perceptions of loneliness resulting from a lack of managerial support, mentoring and recognition, while colleague isolation is employee perceptions of loneliness resulting from a loss of informal learning, camaraderie, and casual interactions with co-workers.

Previous research has confirmed that perceptions of isolation contribute to various individual problems, such as depression (Rich & Scovel, 1987), ill-health and psychological distress (Nelson & Quick, 1985). With regard to the organization, professional isolation leads to employee job dissatisfaction and low organizational commitment, which in turn reduces work performance in the service industry (Kirkman et al., 2002; Wiesenfeld et al., 2001; Mulki et al., 2008).

The job stress of flight attendants derives mainly from organizational and social factors, such as isolation, irregular work hours and the dual safety/service role. A flight attendant works with various groups of co-workers during each duty period, which may be between one day and a week. A flight attendant must learn to work with their co-workers during this period, at the end of which the group is disbanded. Flight attendants thus often work with unfamiliar co-workers, which results in feelings of isolation from colleagues. In particular, senior flight attendants may have higher levels of isolation, since they have to act with more authority. In

extreme cases, Ballard et al. (2004) indicated that professional isolation can lead to suicides among flight attendants. However, despite the seriousness of this problem, little quantitative research has been conducted that directly addresses the problem of colleague isolation among flight attendants, let alone the relationships among colleague isolation, individual health problems and performance at work.

Using the JD-R model to understand burnout and colleague isolation

In previous studies of work stress, the most influential framework to identify the apparent dimensions of job conditions for workers is the job demand-control (JD-C) model (Karasek, 1979; 1990). Based on the JD-C model, Demerouti et al. (2001) proposed the job demands-resources (JD-R) model, and postulated that employee well-being is related to a wide range of workplace, which are characterized as job demands or job resources. Job demands refer to the physical, social, or organizational aspects of the job that require sustained physical or psychological effort, while job resources may reduce job demands, aid in achieving work goals, or stimulate personal growth, learning and development (Demerouti et al., 2001). High job demands overstretch psychological and physical resources and may lead to increased stress, and thus to health problems and negative organizational outcomes, while job resources are the strongest predictors of positive outcomes (Demerouti et al., 2001). In other words, the JD-R model has clearly expanded and improved upon earlier models about the *job demands-burnout-health problems* path in the workplace. The combination of high job demands (e.g., high work-load, emotional demands, and role conflicts) and low job resources (e.g., low autonomy, social support, and feedback) represents joint events that may lead to burnout (Bakker, Van Emmerik, & Euwema, 2006).

Schaufeli and Bakker (2004) tested the JD-R model in four independent service occupational samples, and provided strong evidence for the health impairment process (i.e., burnout mediated the relationship between demands and health problems), and for the motivational process (i.e., engagement mediated the relationship between job resources and turnover intention). In addition, high job demands and poor resources may lead to burnout, which in turn was shown to impair health among Australian volunteers (Lewig et al., 2007).

As for research about job resources, it has been found that salespeople lack interaction with supervisors and co-workers, which may lead to feelings of isolation (Challagalla, Shervani, & Huber, 2000). In addition, employees who perceive a lack of support and demand identification from the organization have higher levels of organizational isolation (Marshall, Michaels, & Mulki, 2007). However, higher levels of peer support can contribute to the reduction of professional isolation (Dussault & Barnett, 1996).

Based on a review of the studies outlined above, this work proposes the conceptual model shown in Figure 1, and the hypotheses are stated as follows:

Hypothesis 1: burnout mediates the relationship between job demands and health problems.
Hypothesis 2: burnout mediates the relationship between job demands and job performance.
Hypothesis 3: burnout mediates the relationship between job resources and health problems.
Hypothesis 4: burnout mediates the relationship between job resources and job performance.
Hypothesis 5: colleague isolation mediates the relationship between job resources and health problems.

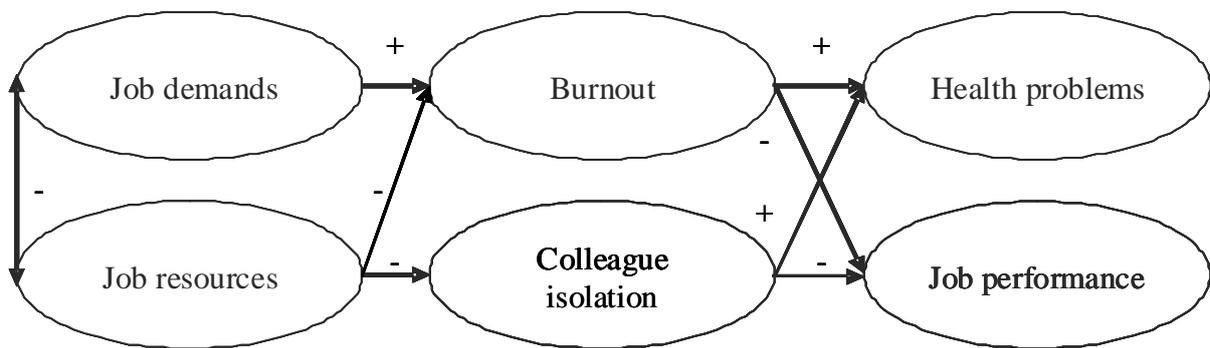Hypothesis 6: colleague isolation mediates the relationship between job resources and job performance.

Figure 1 – The conceptual model

METHOD

Participants and procedure

The flight attendants selected for this study were mainly from Taiwanese airline companies, and a questionnaire was used to collect data from them. The snowball sampling method was used to identify potential respondents, as it is a suitable method for identifying and selecting prospective respondents in uniquely defined target populations. A self-administered questionnaire was distributed to the potential respondents after their willingness to take part in the survey had been ascertained. The data collection was conducted from October to December, 2009. A total of 350 questionnaires were distributed and the total number of usable replies was 305, giving a response rate of 87.1 %.

Female respondents account for the majority (89.5%) of the sample, consistent with the fact that most flight attendants are women in Taiwan. 28.5% of the respondents were 26-30 years of old, followed by those 31-35 years of old (26.2%) and 36-40 years of old (19.7%). 54.8% of the respondents were unmarried and 66.2% had no children. With respect to job seniority, 27.9% had held their job for 1-5 years, 27.9% for 11-15 years, and 18.7% for 6-10 years. The great majority of the respondents (69.8%) were flight attendants, followed by assistant pursers (15.1%) and pursers (15.1%). In addition, 57.0% reported that they had flown 81-100 hours per month over the previous three months.

Measures

Job demands

Job demands are assessed using four items from the *Work-family conflict (WFC)* scale adapted from Bacharach, Bamberger and Conley (1991). *Work-family conflict* is a form of inter-role conflict which occurs when the role pressures from both spheres of an individual's

life are mutually incompatible (Greenhaus & Beutell, 1985). The four WFC items are: "The demands of work interfere with my home, family or social life", "The time I spend at work detracts from my family or social life", "My work has disadvantages for my family or social life", and "I do not seem to have enough time for my family or social life". A five-point Likert-type scale ranging from 'strongly agree' (= 5) to 'strongly disagree' (= 1) was used to gather data.

Job resources

Job resources includes two dimensions, *possibility for development* and *peer support*, and is measured by a four-item *possibility for development* scale and a two-item *peer support* scale adapted from Kristensen, Hannerz, Hogh, and Borg (2005). The four items of *possibility for development* scale are: "My work is varied"," My work requires me to take the initiative", "I have the possibility of learning new things through my work", and "I can use my skills or expertise in my work". Additionally, the two items of *peer support* scale are: "I often get help and support from my colleagues", and "My colleagues are often willing to listen to my work related problems". A five-point Likert-type scale ranging from 'strongly agree' (= 5) to 'strongly disagree' (= 1) was used to gather data.

Burnout

The *exhaustion* and *cynicism* subscales of the Maslach Burnout Inventory-General Survey (MBI-GS) (Schaufeli, Leiter, Maslach, & Jackson, 1996) are adapted in order to measure burnout among flight attendants. The five *exhaustion* items include: "I feel emotionally drained from my work"," I feel burnout from my work", "I feel tired when I get up in the morning and have to face another day on the job", "Working all day is really a strain for me", and "I feel exhausted from overworking myself". Additionally, the five *cynicism* items are: "I have become less interested in my job after doing this work", "I have become less enthusiastic about my work", "I only need to complete my job without being disturbed and I will be all right", "I doubt that my work contributes anything significant", and "I have become more cynical about whether my work contributes to anything". A five-point Likert-type scale ranging from 'strongly agree' (= 5) to 'strongly disagree' (= 1) was used to gather data.

Colleague Isolation

Colleague isolation is a psychological construct that describes employee perceptions of distance from their co-workers, and is measured with an instrument adapted from Marshall, Michaels and Mulki's (2007) workplace isolation scale. The three reverse-scored items of *colleagues isolation scale* are: "I have friends available to me at work", "I have one or more co-workers available who I talk to about day-to-day problems at work", and "I have co-workers available whom I can depend on when I have a problem". A five-point Likert-type scale ranging from 'strongly agree' (= 1) to 'strongly disagree' (= 5) was used to gather data.

Health problems

General health is measured by using a six-item scale adapted from Lu, Tseng, and Cooper (1999), with items such as "I feel unaccountably tired or exhausted", "I tend to eat, drink or smoke more than usual", and "I have muscles trembling (e.g. eye twitches)". A five-point Likert-type scale was used, from 'strongly agree' (= 5) to 'strongly disagree' (= 1).
Mental health is assessed using five items adapted from Kristensen, Hannerz, Hogh, and Borg (2005), including "I have been a very nervous person", "I have felt so down in the dumps that nothing could cheer me up", "I have felt calm and peaceful (reverse item)", "I have felt downhearted and blue", and "I have been a happy person (reverse item)". A five-point Likert-type scale ranging from 'strongly agree' (= 5) to 'strongly disagree' (= 1) was used to gather data.

Job performance

Job performance includes two dimensions, in-role and extra-role performance, and is assessed through the use of self-report measure. *In-role performance* is measured with three items adapted from Williams and Anderson's (1991) *in-role performance* scale: "I adequately complete the assigned duties", "I fulfil the responsibilities specified in my job description", and "I perform the tasks that are expected of me". Additionally, *extra-role performance* is characterized as citizenship behaviours toward individuals (i.e. altruism), and is measured by a three-item scale adapted from MacKenzie, Podsakoff and Fetter (1993), with the following items: "I help orient new people even though it is not required", "I am always ready to help or to lend a helping hand to those around me", and "I willingly give my time to help others". A five-point Likert-type scale was used to measure these items, ranging from 'strongly agree' (= 5) to 'strongly disagree' (= 1).

Data analyses

Following Anderson and Gerbing's (1988) two-step approach, a measurement model was first estimated using Confirmatory Factor Analysis (CFA) to assess its adequacy, and then Structural Equation Modelling (SEM) was utilized to examine the model fitness and to test the causal relationships. Both the CFA and SEM procedures are conducted by using maximum likelihood parameter estimates and an appropriate correlation matrix with the LISREL 8.30 computer program (Joreskog & Sorbom, 1993). The fit of the conceptual models to the empirical data was assessed with the Chi-square (χ^2) statistics, the goodness-of-fit index (GFI), the normed fit index (NFI), the comparative fit index (CFI), and the root mean square of approximation (RMSEA). For each of these statistics, values of 0.90 or higher indicate an acceptable fit, except for the RMSEA, for which values up to 0.08 indicate an acceptable fit to the data (Hair et al., 2006).

EMPIRICAL RESULTS

Summary statistics and reliability

The reliability of the measures was assessed using the Cronbach's alpha. The twelve subscales had satisfactory reliability, with a Cronbach's alpha above 0.70. More specifically, the values of the Cronbach's alpha for the scales were: 0.76 (*job demands)*, 0.80 (*possibility for development*), 0.79 (*peer support*), 0.90 (*exhaustion*), 0.88 (*cynicism*), 0.84 *(colleague isolation)*, 0.89 (*in-role performance)*, 0.85 (*extra-role performance)*, 0.86 (*general health)*, and 0.76 (*mental health)*. The means of the constructs ranged from 2.12 to 4.00, and their standard deviations ranged from 0.60 to 1.02 (see Table 1).

Table I – Descriptive statistics and Cronbach's α (N=305)

Constructs		Items	Mean	S.D.	Construct mean	Cronbach's α
Job Demands (JD)	wfc1	The demands of work interfere with my home, family or social life	3.79	0.86	3.34	0.76
	wfc2	The time I spend at work detracts from my family or social life	3.69	0.84		
	wfc3	My work have disadvantages for my family or social life	2.97	0.89		
	wfc4	I seem not to have enough time for my family or social life	2.92	0.90		
Job Resources (JR)	pd1	My work is varied	3.40	0.90	3.79	0.80
	pd2	My work requires me to take the initiative	3.88	0.72		
	pd3	I have the possibility of learning new things through my work	3.56	0.78		
	pd4	I use my skills or expertise in my work	3.43	0.82		
	ps1	I get help and support from my colleagues	3.74	0.71	3.79	0.79
	ps2	My colleagues are often willing to listen to my work related problems	3.83	0.71		
Burnout (BU)	ex1	I feel emotionally drained from my work	2.83	0.88	2.78	0.90
	ex2	I feel burnout from my work	2.91	0.90		
	ex3	I feel tired when I get up in the morning and have to face another day on the job	2.99	0.88		
	ex4	Working all day is really a strain for me	2.56	0.81		
	ex5	I feel exhausted from overworking myself	2.60	0.95		
	cy1	I have become less interested in my job after doing this work	2.62	0.88	2.68	0.88
	cy2	I have become less enthusiastic about my work	2.83	0.88		
	cy3	I only need to complete my job without being disturbed and I will be all right	2.55	0.88		
	cy4	I doubt that my work contributes anything significant	2.68	0.91		
	cy5	I have become more cynical about whether my work contributes anything	2.73	0.94		

Colleague Isolation (IS)	is1	I have friends available to me at work	2.07	0.75	2.12		0.84
	is2	I have one or more co-workers available who I talk to about day-to-day problems at work	2.08	0.75			
	is3	I have co-workers available whom I can depend on when I have a problem	2.22	0.76			
Job Performance (JP)	jpi1	I adequately complete the assigned duties	3.88	0.64	3.88		0.89
	jpi2	I fulfil the responsibilities specified in my job description	3.89	0.62			
	jpi3	I perform the tasks that are expected of me	3.87	0.60			
	jpe1	I help orient new people even though it is not required	3.94	0.63	4.00		0.85
	jpe2	I am always ready to help or to lend a helping hand to those around me	4.06	0.64			
	jpe3	I willingly give my time to help others	4.01	0.63			
Health Problems (HP)	gh1	I feel unaccountably tired or exhausted	3.28	0.90	2.89		0.86
	gh2	I tend to eat, drink or smoke more than usual	2.61	1.00			
	gh3	I have shortness of breath or feel dizzy	2.57	0.89			
	gh4	I have muscles trembling (e.g. eye twitches)	2.57	0.89			
	gh5	I have pricking sensations or twinges in parts of my body	2.99	1.02			
	gh6	I feeling as though I don't want to get up in the morning	3.29	1.01			
	mh1	I have been a very nervous person	2.82	0.89	2.67		0.76
	mh2	I have felt so down in the dumps that nothing could cheer me up	2.53	0.82			
	mh3	I have felt calm and peaceful	2.83	0.68			
	mh4	I have felt downhearted and blue	2.56	0.81			
	mh5	I have been a happy person	2.63	0.73			

Confirmatory factor analysis of the constructs

This study implements a CFA using LISREL 8.30 (Joreskog & Sorbom, 1993) to assess the uni-dimensionality of each item to the first-order dimensions of the six scales. According to Hair et al. (2006), an item should be removed if its associated standardized factor loading is less than 0.5. Consequently, two items of the *health problems* construct ("I have felt calm and peaceful" and "I have been a happy person") were deleted. All other factor loadings are greater than 0.5 and significant with a t-value at 5%, indicating the convergent validity of the six scales. These items are then summed up to form the reflective indicators: job demands 1 (JD1) and job demands 2 (JD2) underlying the job demands scale; possibility for development (PD) and peer support (PS) underlying the job resources scale; exhaustion (EX) and cynicism (CY) underlying the burnout scale; colleague isolation 1 (IS1), colleague isolation 2 (IS2) and colleague isolation 3 (IS3) underlying the isolation scale; general health

(GH) and mental health (MH) underlying the health problems scale; and in-role performance (JPI) and extra-role performance (JPE) underlying the job performance scale.

Measurement model

Prior to analyzing the structural model, the measurement model was examined using confirmatory factor analysis to analyze the convergent validity of the constructs. Convergent validity should be supported by item reliability, construct reliability and average variance extracted. The measurement model was evaluated by the following three criteria suggested by Fornell and Larcker (1981):

(1) All indicator factor loadings (λ) should be significant and exceed 0.50.

(2) Construct reliabilities should exceed 0.60.

(3) Average variance extracted (AVE) by each construct should exceed the variance due to measurement error for that construct (i.e. AVE should exceed 0.50).

Item reliability indicates the amount of variance in an item due to the underlying construct, and the t-values for all the factor loadings of items were found to be significant ($p<0.01$), thus proving item reliability, except for *possibility for development* (0.48), which was slightly less than 0.50. Construct reliability ranged from 0.62 to 0.87, satisfying the threshold value for an acceptable reliability of 0.60. The AVEs lay between 0.47 and 0.77, with only *job resources* (0.47) being less than 0.50, and all the other constructs met the criteria. The measurement model was thus estimated and demonstrated its parsimoniousness according to the goodness-of-fit indices: $\chi^2_{(50)}$ =132.65 ($p=0.000$), χ^2/df =2.65, RMSEA=0.074, GFI=0.94, PNFI=0.61, PGFI=0.51, NFI=0.95 and CFI=0.97.

Table 2 – Convergent validity

Constructs	Observed variables	Factor loading	Error variance	t-value	CR	AVE
JD	JD1	0.87	0.24	15.13**	0.87	0.77
	JD2	0.88	0.23	15.24**		
JR	PD	0.48	0.77	6.55**	0.62	0.47
	PS	0.84	0.30	8.58**		
BU	EX	0.90	0.19	18.10**	0.84	0.72
	CY	0.79	0.37	15.41**		
IS	IS1	0.73	0.46	14.02**	0.84	0.65
	IS2	0.87	0.24	17.74**		
	IS3	0.80	0.36	15.71**		
JP	JPI	0.89	0.22	16.93**	0.82	0.70
	JPE	0.79	0.38	14.78**		
HE	GH	0.92	0.15	18.11**	0.85	0.74
	MH	0.80	0.36	15.16**		

Note: $\chi^2_{(50)}$ =132.65 ($p=0.000$), χ^2/df =2.65, RMSEA=0.074, GFI=0.94, PNFI=0.61, PGFI=0.51, NFI=0.95, CFI=0.97; ** $p<0.01$

In addition, discriminant validity was assessed by comparing the construct correlations with the square root of the average variance extracted (Fornell & Larcker, 1981). The correlations among constructs are shown in Table 3. The results show that the square root of the average variance extracted for each construct is greater than the levels of the correlations involving the construct, and thus the discriminant validity of the measurement model is confirmed.

Table 3 – Discriminant validity

Constructs	Mean	S.D.	JD	JR	BU	IS	JP	HE
JD	3.34	0.67	**0.88**					
JR	3.64	0.55	-0.10**	**0.69**				
BU	2.73	0.69	0.41	-0.25**	**0.85**			
IS	2.12	0.66	0.08	-0.26**	0.26**	**0.81**		
JP	3.94	0.51	-0.06	0.34**	-0.35**	-0.58**	**0.84**	
HE	2.80	0.67	0.31**	-0.07	0.62**	0.14*	-0.27**	**0.86**

Note: The bold numbers in the diagonal row are square roots of the average variance extracted; ** $p<0.01$

Structural model and hypotheses testing

The structural model was estimated with a maximum likelihood estimation method. The model fit indices include $\chi^2_{(57)}$ = 152.67 (p= 0.000), χ^2/d.f. = 2.68, GFI=0.93, PNFI=0.69, PGFI=0.58, CFI=0.96, NFI=0.94, and RMSEA =0.074, indicating that the proposed model has a reasonable explanation of the observed covariance among the constructs of interest. Figure 2 shows the estimated model with the standardized path coefficients.
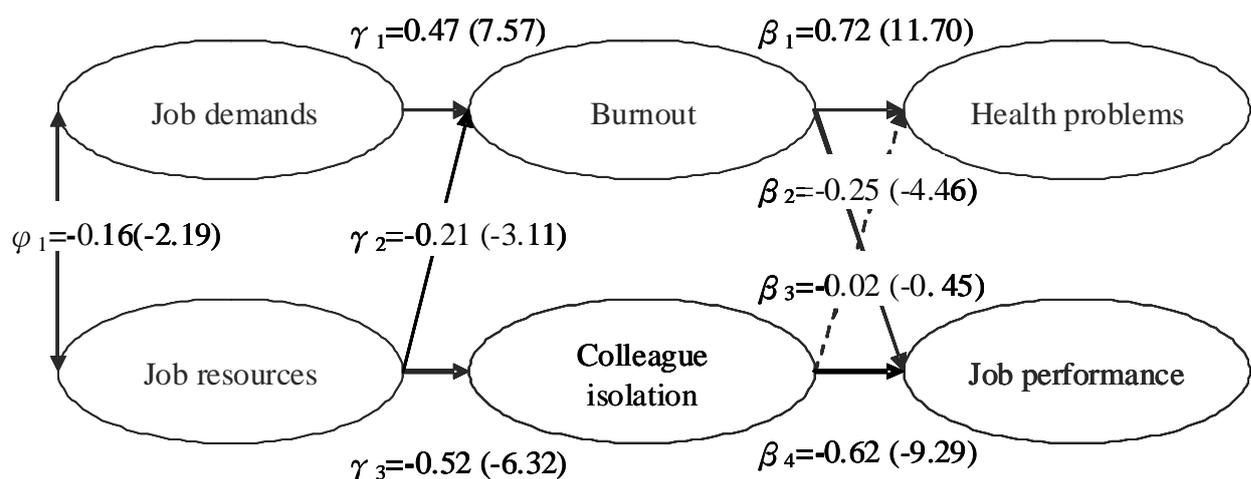

Figure 2 – Estimated results of relationship model

Note: The values in the parentheses are t-values. Solid lines denote significance at the 5% level, while dashed lines denote insignificance.

Five out of six hypothesized relationships are supported in the estimated structural model, all except for H_5: colleague isolation mediates the relationship between job resources and health problems. In terms of the effects of antecedents on job performance, the paths from job demands and job resources to job performance are all significant. Specifically, burnout fully mediates the relationship between job demands (γ_1=0.47, t-value=7.57) and job performance (β_2 =-0.25, t-value= -4.46), as well as the relationship between job resources (γ_2=-0.21, t-value=-3.11) and job performance, thus supporting H_2 and H_4. Furthermore, colleague isolation fully mediates the relationship between job resources (γ_3=-0.52, t-value=-6.32) and job performance (β_4=-0.62, t-value =-9.29), supporting H_6. Finally, in line with the health impairment process of the JD-R model, burnout significantly mediates the relationship between job demands (γ_1=0.47, t-value=7.57) and health problems (β_1=0.72, t-value=11.70), thus supporting H_1. Additionally, the significant path from job resources (γ_2=-0.21, t-value=-3.11) to health problems indicates that H_3 is supported.

DISCUSSION

The findings of this study provide additional support for the validity of the JD-R model, particularly in the airline industry. This study focused on the antecedents and consequences of burnout and colleague isolation among flight attendants. The results confirmed that job demands and resources are related to health problems and job performance through burnout. In addition, job resources are associated with job performance through colleague isolation among flight attendants. On the whole, the JD-R model is well supported by the empirical evidence, and the five process hypotheses that were confirmed can serve as useful references for the development of burnout and isolation management policies to improve employee performance and well-being.

The findings support the central assumptions of the JD-R model, and the path *job demands-burnout–health problems* is demonstrated. Specifically, job demands are the main initiators of burnout, which in turn impair personal health. Incompatible pressures from work and family domains produce tensions that may result in stress that manifests in the form of exhaustion or cynicism, and, in turn, in negative effects on flight attendants' well-being (both general and mental health). Additionally, the results confirm that flight attendants' work-family interference, and lack of support and career advancement, all lead to burnout, which directly and adversely affects job performances. Therefore, policies that aim to improve the work-family balance can reduce work-family conflict and enhance employee job outcomes (Behson, 2005). Flight attendants need many emotional resources (such as patience and understanding) when conducting their airline service work, managers may thus consider help their employees deal with work-family conflicts and enhance their attitudes toward the job and organizations. In this situation, managers may actively assist flight attendants in withdrawing attention from their family roles and providing them with more job resources (i.e., peer support and professional development) for improving flight attendants' health problems and enhancing airline performance,

Job resources are the most important predictors of colleague isolation, and a lack of these will result in decreased job performance. In other words, peer support and career

development opportunities contribute to reducing the perceptions of isolation among flight attendants, and colleague isolation in turn directly affects job performance. Hence, airline managers should highlight the team work element of being a flight attendant, rather than viewing it as an individual pursuit. More social and informal communication among colleagues could help flight attendants to overcome problems they face and to realize that certain negative reactions and feelings are normal in context of the work they do (Ballard et al., 2004). In addition, employee development programs could provide training opportunities and resources for flight attendants so that they increase their skills and knowledge as well as improve their job performance.

Limitations and directions for future research

This study has several limitations which provide avenues for future research. First, our study was limited to the context of Taiwanese airlines using a sample of Taiwanese flight attendants, and thus the findings may not be directly applicable to other contexts. Second, although care was taken to avoid a sampling bias in the data collection process by using the snowball sampling approach, it is possible that a bias still remains. Larger and more diverse samples from different cultures are thus necessary to enhance the robustness of this study's findings. Third, job demands were assessed by using a single *work-family conflict* dimension to measure overall airline demands in the workplace, because the mutual interference between family and work roles is a major antecedent of job stress (Ballard et al., 2006). However, the central components of job demands differ based on specific job characteristics and work environments. For example, the time pressure and work-home interference scales are developed in order to measure job demands among volunteers (Lewig et al., 2007). Future research should thus examine sample-specific job demands according to different work conditions.

Fourth, colleague isolation is found to have a significant negative effect only on job performance, but not on health problems. Although its direct effect on health problems is not significant, colleague isolation may impact health problems through the mediation of other variables, such as job stress (Nelson, & Quick, 1985). The mediators and moderators of professional isolation are therefore worthy of further investigation. Moreover, company isolation is an important issue in the service industry, for example, the majority of salespeople have few opportunities for informal meetings with their supervisors (Mulki et al., 2008). Future research should thus consider company isolation and examine its relationship with regard to stress, satisfaction, organizational commitment, and job outcomes in the service context.

Finally, coping behaviours could significantly explain variations in health outcomes (Chen & Carol, 2008). Job stress may not be directly associated with health problems and substance abuse, but instead be mediated through or moderated by coping strategies. In addition to the job outcomes that are investigated in this study, future work could focus on flight attendants' behaviours for coping with stress, as well as their relationships with job stress, burnout and general health.

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