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Exploring Organizational Downsizing of Taiwanese Armed Forces upon Psychological Impacts of their Retained Personnel

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Abstract

The purpose of this study is to examine that, after Taiwan implemented a military downsizing program, whether the job stress perceived by retained personnel has a statistically significant influence on their organizational commitment. Recommendations are proposed according to the research findings as advice for high-level managers who make policies amid organizational changes. A quantitative approach was adopted for this study, with questionnaire given out to those selected by convenience sampling within the national defense system, namely cadet officers/corporals at military academies and contract personnel of commands/military bases nationwide. Findings from this research indicate that, except job-transfer experiences, only a part of the demographic qualities significantly affect the retained personnel's job stress and organizational commitment. After scrutinizing "retained personnel's perceived job tress", "the relation between job stress and organizational commitment" and "the influence of job stress on organizational downsizing and organizational commitment", the author of this study discovered the *mediating effect* of *job stress* on the relation between organizational downsizing and organizational commitment.

Keywords: Organizational downsizing, Job stress, Organizational commitment

INTRODUCTION

Research background and motives

To tackle the financial crisis that swept across the globe in recent years, competitiveness-minded companies resort to *organizational downsizing* as a short cut to lowering costs, improving core operations along with the overall efficiency, and eventually staying in business. Meanwhile, the negative growth in Taiwan's defense spending over the past years forced the country's military, officially known as the Republic of China Armed Forces, to change its strategic guidelines from "offense/defense integration" to "tenacious defense and effective deterrence". It is therefore imperative that the national defense authorities adopt a modernized management model to achieve high efficiency and also a "lean organization with core competitiveness" by means of downsizing, bureaucratic mergers, enhancing personnel competence, updating the weaponry, and effectively using the national defense resources.

The *downsizing program* and *refining program* implemented from 1997 through 2000 successfully reduced the 400,000 personnel of Taiwanese armed forces to the expected level of 275,000. Both programs are intended to "reduce high-level military jobs while increasing the base-level ones" by cutting the number of incumbent personnel, flattening the organization and adjusting the structure of armed forces. Ever since 1999, the country's national defense policy-makers have focused on building "all-volunteer armed forces" under the guidelines of "enhancing military strength with refined organization". The authorities are planning a multi-phase reform initiative called "the elite program" to achieve the goal of 225,000 personnel between 2011 and 2014. Eventually, the Taiwanese military hopes the adjusted organization/structure will lead to a "small and lean, fast-responding and highly efficient" military prowess that strikes precisely.

Organizational changes within the armed forces not only drastically alter the structure of personnel, organization and strategic patterns, but also make a huge impact on military organization members: the major factor behind the organization's core competitiveness. Whether the retained personnel's perceived downsizing-induced job stress affects their organizational commitment, therefore, is a determinant of the success of downsizing. Individuals of Taiwanese military personnel are expected to show varied behavioral reactions to downsizing, because any organizational change may result in anxiety among staffers satisfied with the status quo, leaving them worried about their capacity to meet post-change requirements. As the less achievement-oriented staffers almost always have problems adapting to the instability caused by organizational changes, a change that is too drastic or too fast may trigger unease, anxiety, chaos and tension throughout the organization, and eventually fail. As a result, exploring the psychological impact of organizational changes on the retained personnel is the greatest motive behind this present study.

Purposes

Given the background and motives mentioned above, the purposes of this study are stated as below:

1. To explore whether demographic qualities of retained Taiwanese military personnel significantly affect their job stress;
2. To explore whether demographic qualities of retained Taiwanese military personnel significantly affect their organizational commitment;
3. To explore whether military downsizing significantly affects the retained Taiwanese personnel's perceived job stress;
4. To explore whether the retained Taiwanese personnel's perceived job stress significantly affects their organizational commitment;
5. To explore whether the retained Taiwanese personnel's perceived job stress has a mediating effect in the relation between organizational downsizing and organizational commitment.

LITERATURE REVIEW

Organizational downsizing

In most of the previous studies, organizational downsizing refers to the *reduction of human resources*, or *reduction of the organization size*. For example, Lippitt (1984) defined organizational downsizing as an organization's attempt to adapt to the changing circumstances while seeking survival and growth by reducing its size. Sanghamitra and Chattezjee (2005) argued that downsizing is cutting the number of employees by means of layoffs while taking supporting measures (i.e., organization restructuring, mergers and acquisitions, and reducing the hierarchy levels) to lower personnel-supporting costs, meet the operating cost target, and enhance corporate competitiveness. Given these academic viewpoints and their chief concerns, organizational downsizing is an attempt to reduce personnel size and flatten the organization, in order to simplify the organization and lower the operating cost for improvement in operating processes, productivity, and organizational effectiveness.

Based on his previous studies, Cameron (1994) proposed three organizational downsizing strategies, each of which has a specific combination of focus, target personnel, time of implementation, benefits and restrictions. The first strategy is *workforce reduction*, which shows effects in a short period of time despite the potential adaptability problems facing employees in the long run. The second strategy,

work redesign, requires that the organizational structure be designed all over again, hence the impossibility to show immediate effects. The third, or *systemic*, strategy is intended to alter the organizational culture and employees' values by means of an across-the-board reduction that involves suppliers, inventory, operating processes, production methods, customer services and marketing.

Job stress

The term "stress" was added to social science glossary by Hans Selye (1956), who defined stress as the reactions of an organism to an external stimulus in order to return to normalcy; the existence of any such reaction indicates that the organism is under stress. There are two types of stress: positive and negative. Although stress can be positive in a situation that presents opportunities for an individual to achieve something, it will turn negative when restrictions or requirements are imposed upon that individual. In most cases, negative stress exists in a potential form and is hardly noticeable until it becomes a reality through accumulation (Chien-huang Lin, 2002).

Job stress, which involves how an individual reacts to changes in the circumstances, is mostly a result from the uncertainty engendered by such changes that leaves the individual worried about his/her lack of capacity to handle the consequences. For many employees, organizational changes are the cause of job stress. In an analysis, Bo-ling Tang et al. (2002) noted that excessive job stress increases employee leave hours, lowers productivity, and increases the employees' chance of contracting diseases. Robbins (1994) said the potential sources of stress include external environment variables (i.e., economic, political and technological uncertainties), organization variables (e.g., the change in interpersonal relationships) and personal variables (e.g., family issues, economic problems and personal qualities). He went on to argue that job stress results in physical, psychological and behavioral symptoms, with the perceived stress prompting an individual to react physically, psychologically and behaviorally.

Organizational commitment

The concept of *organizational commitment* was first appeared in "The Organization Man", an article published by William Whyte in 1956, which argues that an organization man belongs to the organization rather than simply working for it. Different as they may be, academic opinions regarding how organizational commitments are non-contradictory in the nature: the classification methods proposed by previous studies are invariable focused on relative emotional changes and *exchanges* between explicit behaviors.

Based on the argument of Porter (1974), this present study measures organizational commitment in three aspects: *value commitment, effort commitment* and *retention commitment*. According to the literature review, an increase in the members' commitment to their organization's decisions results in a higher degree of loyalty to that organization (i.e., value commitment) while prompting them to work harder for the organization (i.e., the effort commitment) and to remain a part of it (i.e., retention commitment). Not only does the degree of commitment displayed by Taiwan's military personnel to their organization, which is a part of the society, exert a considerable influence on the image, performance and morale of armed forces, it is also closely linked to the national defense.

METHODOLOGY

Research framework and hypotheses

A factor analysis was conducted on information collected using the questionnaire, with the aspect of "how the Taiwanese voluntary sergeants/officers and contract personnel perceive the organizational downsizing" attributed to three factors, namely "organizational restructuring", "workforce reduction" and "work redesign"; the "job stress" aspect attributed to the three factors of "psychological stress", "physical stress" and "change in interpersonal relationships"; the "organizational commitment" aspect attributed to the two factors of "value commitment" and "retention commitment". Figure 1 shows the research framework.

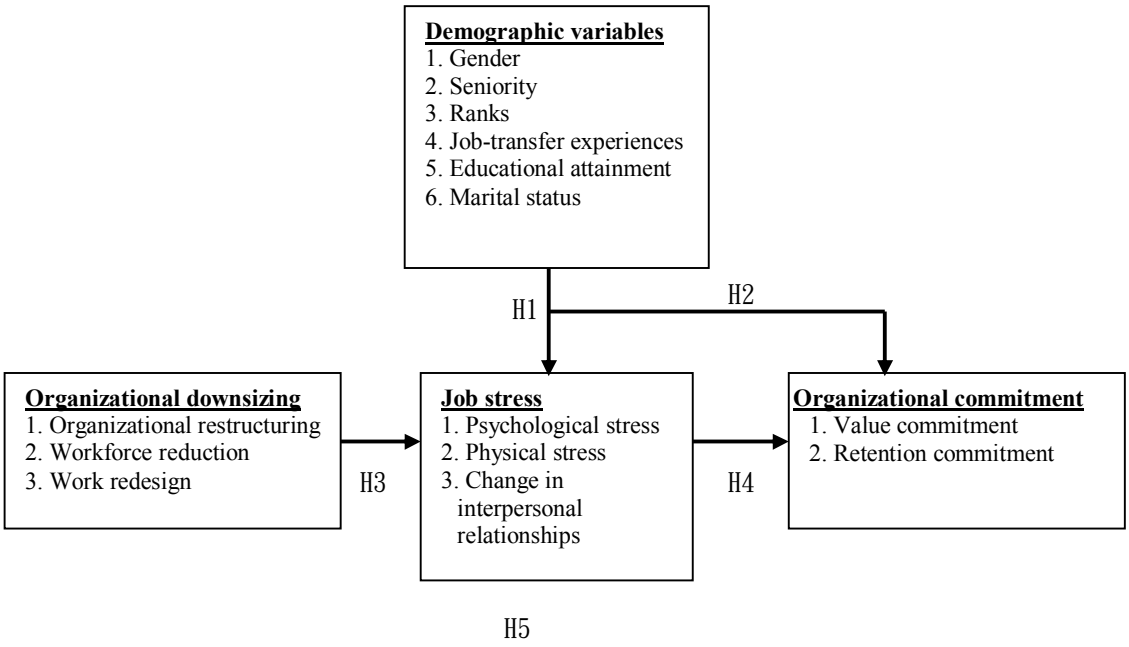

Figure 1 Research Framework

The hypotheses to be verified under the research framework are listed below:

H1: Demographic variables significantly affect the retained personnel's job stress.
- H1-1: Gender significantly affects the retained personnel's job stress.
- H1-2: Seniority significantly affects the retained personnel's job stress.
- H1-3: Ranks significantly affect the retained personnel's job stress.
- H1-4: Job-transfer experiences significantly affect the retained personnel's job stress.
- H1-5: Educational attainment significantly affects the retained personnel's job stress.
- H1-6: Marital status significantly affects the retained personnel's job stress.

H2: Demographic variables significantly affect the retained personnel's organizational commitment.
- H2-1: Gender significantly affects the retained personnel's organizational commitment.
- H2-2: Seniority significantly affects the retained personnel's organizational commitment.
- H2-3: Ranks significantly affect the retained personnel's organizational commitment.
- H2-4: Job-transfer experiences significantly affect the retained personnel's organizational commitment.
- H2-5: Educational attainment significantly affects the retained personnel's organizational commitment.
- H2-6: Marital status significantly affects the retained personnel's organizational commitment.

H3: Organizational downsizing significantly affects the retained personnel's perceived job stress.
- H3-1: Organizational downsizing significantly affects the retained personnel's perceived physical stress.
- H3-2: Organizational downsizing significantly affects the retained personnel's perceived psychological stress.
- H3-3: Organizational downsizing significantly affects the retained personnel's perceived change in interpersonal relationships.

H4: The perceived job tress significantly affects the retained personnel's organizational commitment.
- H4-1: The perceived job tress significantly affects the retained personnel's value commitment.
- H4-2: The perceived job tress significantly affects the retained personnel's retention commitment.

H5: Job stress is a mediator in the relation between organizational downsizing and organizational commitment.

Measurement methods

While ANOVA was used to verify the first two hypotheses, regression analyses were conducted for H3, H4 and H5. The questionnaire answers were measured using a 5-point Likert Scale, with 1 being "strongly disagree"; 2 being "disagree"; 3, "no comment"; 4, "agree"; 5, "strongly agree".

Testing the reliability

As for the reliability of each aspects in this study, the Cronbach's α for each aspect of "organizational downsizing" ranges from 0.509 to 0.779, which indicates reliability; the Cronbach's α for each aspect of "job stress" ranges from 0.759 to 0.908, indicating high reliability; the Cronbach's α for each aspect of "organizational commitment" ranges from 0.741 to 0.860, indicating high reliability. Apparently, the Cronbach's α of every aspect in this study is satisfactory with a certain degree of stability and internal consistency, as shown in Table 1.

Table 1 Cronbach's α of different aspects in this study

Variables	Aspects of research	Number of questionnaire items	Cronbach's α	Reliability
Organizational downsizing	Work redesign	6	0.779	0.601
	Workforce reduction	3	0.754	
	Organizational restructuring	3	0.509	
Job stress	Physical stress	9	0.908	0.939
	Psychological stress	6	0.870	
	Change in interpersonal relationships	7	0.759	
Organizational commitment	Value commitment	9	0.860	0.890
	Retention commitment	6	0.741	

Source: author of this study

DATA ANALYSIS AND RESULTS

Analysis of sample structure

In this study, 424 copies of questionnaire were given out to voluntary sergeants/officers and contract personnel in the Taiwanese military, selected using convenience sampling. After removing copies that are incompletely or incorrectly answered, or have the answers concentrated in a specific option, 399 of the questionnaire copies received (or 94.10%) proved valid.

Males account for 78.9% of the valid samples, larger than females (21.1%). That gender ratio matches the currently male-dominant structure of Taiwanese military. Respondents with a seniority of 6-10 years represent the largest part of samples (38.3%), followed by 11-15 years (22.1%), less than 5 years (15.3%), 16-20 years (13.5%) and 20 years or longer (10.8%). Judging from the sample distribution by seniority, most personnel engaged in training or advanced studies have a seniority of 6-15 years and serve as mid- to high-level staff in their respective units. As for the military ranks, colonels account for the largest portion of valid samples (35.6%), followed by sergeants (31.3%), lieutenants (24.8%) and contract personnel (8.3%). Respondents who had been transferred to other jobs for 3 or more times represent the largest part of samples (51.6%), followed by twice (15.1%) and once (33.3%), which signifies that most Taiwanese military personnel have job-transfer experiences due to promotions, professionalism reasons, or job rotation programs that require them to work in eastern/western Taiwan or outlying islands. When it comes to educational attainment, Bachelor's degree accounts for the largest portion of samples (38.1%), followed by college (24.6%), Master's degree or a higher (including command and staff college, war college, and strategic studies programs) (21.6%), and vocational high school or below (15.8%). Apparently, Taiwan's military education authorities have achieved the goal of nurturing officers of

Bachelor's or higher degrees and college-educated sergeants. As for the marital status, a larger part of the respondents are single (53.1%), compare to the 46.9% married respondents.

Difference in the perceived job stress among demographic variables

1. Comparing the retained personnel's job stress level between gender groups

Table 2 The difference in aspects of job stress between gender groups

Variables	Respondents	Average	Standard deviation	t-value	η^2	Statistical power
Physical stress						
Male	315	3.0681	.72727	6.921***	.108	1.000
Female	84	2.4524	.71361			
Psychological stress						
Male	315	3.4815	.73454	4.847***	.056	.998
Female	84	3.0417	.75511			
Change in interpersonal relationships	315	3.2971	.67456	8.518***	.155	1.000
Male	84	2.5986	.64098			
Female						

n=399; *p < .05. **p < .01. ***p < .001.

According to Table 2, the retained military personnel's perceived degree of job stress significantly varies between genders in all aspects, with the males perceiving a significantly higher degree of stress than females. Gender explains 10.8% of the variance in "physical stress", and the effect size suggests a medium relation between gender and physical stress, with a statistical power that indicates a 100% chance of yielding the correct decision. Gender also explains 5.6% of the variance in "psychological stress", and the effect size suggests a weak relation between gender and psychological stress, with a statistical power that indicates a 99.8% chance of yielding the correct decision. Likewise, gender explains 15.5% of the variance in "change in interpersonal relationships", and the effect size suggests a medium relation between "gender" and "change in interpersonal relationships", with a statistical power that indicates a 100% chance of yielding the correct decision.

2. Comparing the retained personnel's job stress level among seniority groups

Table 3 The difference in aspects of job stress among seniority groups

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Physical stress							
(1) Less than 5 years	61	3.1311	.67663	7.045***	1>5 2>4 2>5	.057	.995
(2) 6-10 years	153	3.1068	.74850				
(3) 11-15 years	88	2.8169	.78568				
(4) 16-20 years	54	2.7099	.73049				
(5) 20 years or longer	43	2.6021	.74466				
Psychological stress							
(1) Less than 5 years	61	3.5765	.56320	2.020		.010	.604
(2) 6-10 years	153	3.4205	.81808				
(3) 11-15 years	88	3.3731	.78051				
(4) 16-20 years	54	3.2284	.77520				
(5) 20 years or longer	43	3.2442	.67881				

Change in interpersonal relationships							
(1) Less than 5 years	61	3.2529	.66670	6.195***	2>3	.050	.988
(2) 6-10 years	153	3.3231	.71911		2>5		
(3) 11-15 years	88	3.0227	.65658				
(4) 16-20 years	54	3.0159	.78131				
(5) 20 years or longer	43	2.8173	.72060				

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 3 indicate a significant difference in "physical stress" as well as "change in interpersonal relationships" among seniority groups of the retained personnel. A post-hoc comparison based on Scheffe's method reveals that the discrepancy in physical stress is resulted from the fact that respondents with seniorities of "less than 5 years" and "6-10 years" registered a significantly higher average score in "perceived job stress", compared to "16-20 years" and "20 years or longer". That in turn leads to a 5.7% Relative Strength Index (RSI) and a statistical power (of inferential statistics) that indicates a 99.5% chance of yielding the correct decision. According to the result of another post-hoc comparison, the discrepancy in "change in interpersonal relationships" is resulted from the fact that respondents with seniorities of "6-10 years" registered a significantly higher average score in "perceived job stress", compared to "11-15 years" and "20 years or longer". That in turn leads to a 5.0% RSI and a statistical power (of inferential statistics) that indicates a 98.8% chance of yielding the correct decision. However, there is an insignificant difference in the perceived psychological stress among seniority groups.

3. Comparing the retained personnel's job stress level among ranks groups

Table 4 The difference in aspects of job stress among "ranks" groups

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Physical stress							
(1) Sergeant	125	3.0711	.70009		1>3		
(2) Lieutenant	99	3.2278	.72294	22.652***	1>4	.140	1.000
(3) Colonel	142	2.8067	.75784		2>3		
(4) Contract personnel	33	2.1347	.44162		2>4		
					3>4		
Psychological stress							
(1) Sergeant	125	3.3573	.77358		1>4		
(2) Lieutenant	99	3.7037	.65359	15.791***	2>1	.100	1.000
(3) Colonel	142	3.3509	.73543		2>3		
(4) Contract personnel	33	2.7273	.62890		2>4		
					3>4		
Change in interpersonal relationships							
(1) Sergeant	125	3.3223	.66560		1>3		
(2) Lieutenant	99	3.3795	.68334	31.753***	1>4	.188	1.000
(3) Colonel	142	3.0624	.66387		2>3		
(4) Contract personnel	33	2.1861	.42631		2>4		
					3>4		

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 4 indicate a significant difference in all aspects of perceived job stress among ranks groups of retained personnel. A post-hoc comparison based on Scheffe's method reveals that the discrepancy in physical stress is resulted from the fact that sergeants and lieutenants registered a

significantly higher average score in "perceived job stress", compared to colonels and contract personnel. That in turn leads to a 14.0% RSI and a statistical power (of inferential statistics) that indicates a 100% chance of yielding the correct decision. A similar post-hoc comparison suggests that the discrepancy in psychological stress is resulted from the fact that lieutenants registered a significantly higher average score in "perceived job stress" than sergeants, colonels or contract personnel, with a 10.0% RSI and a statistical power (of inferential statistics) that indicates a 100% chance of yielding the correct decision. Results from yet another post-hoc comparison signaled the discrepancy in "change in interpersonal relationships" is resulted from the fact that sergeants and lieutenants registered a significantly higher average score in "perceived job stress", compared to colonels and contract personnel. That in turn leads to an 18.8% RSI and a statistical power (of inferential statistics) that indicates a 100% chance of yielding the correct decision.

4. Comparing the retained personnel's job stress level among groups of "job-transfer experiences"

Table 5 The difference in aspects of job stress among groups of "job-transfer experiences"

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Physical stress							
(1) Once	133	2.9215	.77607	.152		.004	.073
(2) Twice	60	2.9074	.75030				
(3) 3 times or more	206	2.9585	.76699				
Psychological stress							
(1) Once	133	3.3095	.77393	1.939		.005	.402
(2) Twice	60	3.3167	.81632				
(3) 3 times or more	206	3.4612	.72907				
Change in interpersonal relationships							
(1) Once	133	3.0988	.75042	.497		.003	.131
(2) Twice	60	3.1786	.80967				
(3) 3 times or more	206	3.1748	.68357				

n=399; *$p < .05$. **$p < .01$. ***$p < .001$.

The test results in Table 5 indicate a significant difference in all aspects of perceived job stress among "job-transfer experiences" groups of retained personnel.

5. Comparing the retained personnel's job stress level among "educational attainment" groups

Table 6 The difference in aspects of job stress among groups of "educational attainment"

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Physical stress							
(1) Vocational high school or below	63	2.7513	.74045				
(2) College	98	2.9422	.74702				
(3) Bachelor's degree	152	3.0994	.75675				
(4) Master's or a higher degree (including command and staff college, war college, and strategic studies programs)	86	2.7868	.77285	4.746**	3>1 3>4	.027	.898
Psychological stress							
(1) Vocational high school or below	63	3.0899	.72142				
(2) College	98	3.3146	.81681				
(3) Bachelor's degree	152	3.5724	.70728				
(4) Master's or a higher degree (including command and staff college, war college, and strategic studies programs)	86	3.3682	.73347	6.832***	3>1	.042	.977
Change in interpersonal relationships							
(1) Vocational high school or below	63	3.0363	.76155				
(2) College	98	3.1254	.82264				
(3) Bachelor's degree	152	3.2115	.67448				
(4) Master's or a higher degree (including command and staff college, war college, and strategic studies programs)	86	3.1528	.66495	.918		.001	.252

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 6 indicate a significant difference in the perceived physical and psychological job stress among "educational attainment" groups of retained personnel. A post-hoc

comparison based on Scheffe's method reveals that the discrepancy in physical stress is resulted from the fact that respondents with a Bachelor's degree registered a significantly higher average score in "perceived job stress", compared to "vocational high school or below" and "Master's degree or a higher". That in turn leads to a 2.7% RSI and a statistical power (of inferential statistics) that indicates a 89.8% chance of yielding the correct decision; According to a similar post-hoc comparison, the discrepancy in psychological stress is resulted from the fact that respondents with a Bachelor's degree registered a significantly higher average score in "perceived job stress" than "vocational high school or below", with a 4.2% RSI and a statistical power (of inferential statistics) that indicates a 97.7% chance of yielding the correct decision. However, the perceived "change in interpersonal relationships" did not vary significantly among "educational attainment" groups.

6. Comparing the retained personnel's job stress level among "marital status" groups

Table 7 The difference in aspects of job stress among groups of "marital status"

Variables	Respondents	Average	Standard deviation	t-value	η^2	Statistical power
Physical stress						
Married	186	2.8238	.77924	-2.819**	.020	.803
Single	213	3.0386	.74153			
Psychological stress						
Married	186	3.3145	.76804	-1.833	.008	.448
Single	213	3.4538	.74770			
Change in interpersonal relationships	186	2.9977	.69772	-3.993***	.039	.979
Married	213	3.2830	.72419			
Single						

n=399; *$p < .05$. **$p < .01$. ***$p < .001$.

The test results in Table 7 indicate a significant difference ($p < .01$) in the perceived "physical stress" and "change in interpersonal relationships" among "marital status" groups of retained personnel. Marital status explains 2.0% of the variance in "physical stress", and the effect size suggests that marital status and physical stress are weakly related, with a statistical power that indicates an 80.3% chance of yielding the correct decision. Marital status explains 3.9% of the variance in "change in interpersonal relationships", and the effect size suggests a weak relation between "marital status" and "change in interpersonal relationships", with a statistical power that indicates a 97.9% chance of yielding the correct decision.

According to the afore-mentioned analysis results, there is a significant difference in the perceived "physical stress", "psychological stress" and "change in interpersonal relationships" among gender and ranks groups; a significant difference in the perceived "physical stress" and "change in interpersonal relationships" among seniority and marital status groups; a significant difference in the perceived physical and psychological stress among "educational attainment" groups. The perceived "physical stress", "psychological stress" and "change in interpersonal relationships", nevertheless, did not differ among "job-transfer experiences" groups.

Difference in the perceived organizational commitment among demographic variables

1. Comparing the retained personnel's organizational commitment between gender groups

Table 8 The difference in aspects of organizational commitment between gender groups

Variables	Respondents	Average	Standard deviation	t-value	η^2	Statistical power
Value commitment						
Male	315	2.8423	.77547	-5.333***	.067	1.000
Female	84	3.3228	.54723			
Retention commitment						
Male	315	3.1466	.89424	-4.211***	.043	.987
Female	84	3.5813	.59757			

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 8 indicate a significant gender difference in all aspects of organizational commitment perceived by the retained personnel, with females reporting a significantly higher organizational commitment than their male counterparts. Gender explains 6.7% of the variance in "value commitment", and the effect size suggests that gender and value commitment are medium-related, with a statistical power that indicates a 100% chance of yielding the correct decision. Gender also explains 4.3% of the variance in "retention commitment", and the effect size suggests that gender is weakly related to the retention commitment, with a statistical power that indicates a 98.7% chance of yielding the correct decision.

2. Comparing the retained personnel's organizational commitment among seniority groups

Table 9 The difference in aspects of organizational commitment among "seniority" groups

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Value commitment							
(1) Less than 5 years	61	2.8525	.75297	7.274***	3>2	.059	.996
(2) 6-10 years	153	2.7364	.80496		4>2		
(3) 11-15 years	88	3.0934	.69682		5>2		
(4) 16-20 years	54	3.1132	.71244				
(5) 20 years or longer	43	3.2894	.52517				
Retention commitment							
(1) Less than 5 years	61	3.0765	.85124	4.786***	5>2	.037	.954
(2) 6-10 years	153	3.0763	1.03731				
(3) 11-15 years	88	3.3409	.64915				
(4) 16-20 years	54	3.4506	.67730				
(5) 20 years or longer	43	3.5659	.52722				

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 9 indicate a significant difference in the perceived "value commitment" and "retention commitment" among seniority groups of retained personnel. A post-hoc comparison based on Scheffe's method reveals that the discrepancy in value commitment is resulted from the fact that respondents with a seniority of "11-15 years", "16-20 years" and "20 years or longer" registered a significantly higher average score in "perceived organizational commitment" than "6-10 years", with a 5.9% RSI and a statistical power (of inferential statistics) that indicates a 99.6% chance of yielding the correct decision. According to the result of a similar post-hoc comparison, the discrepancy in retention commitment is resulted from the fact that respondents with seniorities of "20 years or longer" registered a

significantly higher average score in "perceived organizational commitment" than "6-10 years", with a 3.7% RSI and a statistical power (of inferential statistics) that indicates a 95.4% chance of yielding the correct decision.

3. Comparing the retained personnel's organizational commitment among ranks groups

Table 10 The difference in aspects of organizational commitment among "ranks" groups

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Value commitment							
(1) Sergeant	125	2.7991	.80256		3>1		
(2) Lieutenant	99	2.7003	.75900	15.346***	3>2	.098	1.000
(3) Colonel	142	3.1002	.64318		4>1		
(4) Contract personnel	33	3.5455	.57087		4>2 4>3		
Retention commitment							
(1) Sergeant	125	3.0627	.84843		3>1		
(2) Lieutenant	99	3.0808	1.10871	8.671***	4>1	.055	.995
(3) Colonel	142	3.3815	.60585		4>2		
(4) Contract personnel	33	3.7576	.65364				

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 10 indicate a significant difference in all aspects of perceived organizational commitment among ranks groups of retained personnel. A post-hoc comparison based on Scheffe's method reveals that the discrepancy in value commitment is resulted from the fact that contract personnel and colonels registered a significantly higher average score in "perceived organizational commitment", compared to sergeants and lieutenants. That in turn leads to a 9.8% RSI and a statistical power (of inferential statistics) that indicates a 100% chance of yielding the correct decision. According to the result of a similar post-hoc comparison, the discrepancy in retention commitment is resulted from the fact that contract personnel and colonels registered a significantly higher average score in "perceived organizational commitment", compared to sergeants and lieutenants. That in turn leads to a 5.5% RSI and a statistical power (of inferential statistics) that indicates a 99.5% chance of yielding the correct decision.

4. Comparing the retained personnel's organizational commitment among groups of "job-transfer experiences"

Table 11 The difference in aspects of organizational commitment among groups of "job-transfer experiences"

Variables	Respondents	Average	Standard deviation	F-value	Scheffe'	ω^2	Statistical power
Value commitment							
(1) Once	133	2.9541	.77176	.091		.005	.064
(2) Twice	60	2.9056	.92801				
(3) 3 times or more	206	2.9477	.69650				
Retention commitment							
(1) Once	133	3.2331	.84111	.049		.005	.057
(2) Twice	60	3.2111	.79834				
(3) 3 times or more	206	3.2492	.88953				

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 11 indicate a significant difference in all aspects of perceived organizational commitment among "job-transfer experiences" groups of retained personnel.

5. Comparing the retained personnel's organizational commitment among "educational attainment" groups

Table 12 The difference in aspects of organizational commitment among groups of "educational attainment"

Variables	Respondents	Average	S.d.	F-value	Scheffe'	ω^2	Statistical power
Value commitment							
(1) Vocational high school or below	63	2.9224	.78685				
(2) College	98	2.9615	.81931				
(3) Bachelor's degree	152	2.8838	.78851				
(4) Master's or a higher degree (including command and staff college, war college, and strategic studies programs)	86	3.0439	.59538	.850		.001	.235
Retention commitment							
(1) Vocational high school or below	63	3.1455	.82550				
(2) College	98	3.2109	.79501				
(3) Bachelor's degree	152	3.1524	.82789				
(4) Master's or a higher degree (including command and staff college, war college, and strategic studies programs)	86	3.4884	.96467	3.274*	4＞3	.017	.748

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 12 suggest there is an insignificant difference in value commitment and a significant difference in retention commitment among "educational attainment" groups of the retained personnel. A post-hoc comparison based on Scheffe's method reveals that the discrepancy in retention commitment is resulted from the fact that respondents with a "Master's or a higher degree" registered a significantly higher average score in "perceived organizational commitment" than those with a Bachelor's degree. That in turn leads to a 1.7% RSI and a statistical power (of inferential statistics) that indicates a 74.8% chance of yielding the correct decision.

6. Comparing the retained personnel's organizational commitment among "marital status" groups

Table 13 The difference in aspects of organizational commitment among groups of "marital status"

Variables	Respondents	Average	Standard deviation	t-value	η^2	Statistical power
Value commitment						
Married	186	3.0753	.63638	3.283***	.026	.906
Single	213	2.8284	.83556			
Retention commitment						
Married	186	3.3799	.63877	3.118**	.024	.875
Single	213	3.1142	.99711			

n=399; *p < .05. **p < .01. ***p < .001.

The test results in Table 13 indicate a significant difference in the perceived value/retention commitment among "marital status" groups, with the married personnel displaying a significantly greater organizational commitment than their single counterparts (p < .001). Marital status explains 2.6% of the variance in "value commitment", and the effect size suggests that marital status and value commitment are weakly related, with a statistical power that indicates a 90.6% chance of yielding the correct decision. Marital status also explains 2.4% of the variance in "retention commitment", and the effect size suggests marital status and retention commitment are weakly related, with a statistical power that indicates an 87.5% chance of yielding the correct decision.

According to the afore-mentioned analysis results, there is a significant difference in the perceived value/retention commitment among gender, seniority, ranks and marital status groups of the retained

personnel; a significant difference in retention commitment among "educational attainment" groups. However, the perceived value/retention commitment did not differ among groups of "job-transfer experiences".

A regression analysis of job tress perceived by retained personnel after organizational downsizing

Table 14 A regression analysis of organizational downsizing versus job stress

Variables	Physical stress Pattern 1		Psychological stress Pattern 2		Change in interpersonal relationships Pattern 3	
	β	t	β	T	β	t
Organizational downsizing	-.161	-3.245**	-.127	-2.549**	-.168	-3.400**
R^2	.026		.016		.028	
ΔR^2	.023		.014		.026	
F	10.528**		6.497**		11.560**	

n=399; *p < .05. **p < .01

Table 14 shows the results of a regression analysis of organizational downsizing versus job stress. The explainable variance (R2) of the post-downsizing physical stress perceived by retained personnel (β=-.161, p<0.01) is .026, with the F-value reaching statistical significance (p<0.01). The explainable variance (R2) of post-downsizing psychological stress perceived by retained personnel (-.127, p<0.01) is .016, with the F-value reaching statistical significance (p<0.01). The explainable variance (R2) of post-downsizing "change in interpersonal relationships" perceived by retained personnel (β=-.168, p<0.01) is .028, with the F-value reaching statistical significance (p<0.01). Apparently, downsizing has a significantly negative influence on the retained personnel in terms of physical/psychological stress and interpersonal relationships. H3-1, H3-2 and H3-3 are consequently sustained.

A regression analysis of how the job tress perceived by retained personnel affects organizational commitment

Table 15 A regression analysis of job stress versus organizational commitment

Variables	Value commitment Pattern 1		Retention commitment Pattern 2	
	β	t	β	t
Job stress	-.457	-10.244***	-.338	-7.162***
R^2	.209		.114	
ΔR^2	.207		.112	
F	104.939***		51.298***	

n=399; *p < .05. **p < .01. ***p < .001.

Table 15 shows the results of a regression analysis of job stress against organizational commitment. The explainable variance (R2) of job stress versus value commitment (β=-.457, p<0.001) is .0209, with the F-value reaching statistical significance (p<0.01). The explainable variance (R2) of job stress versus retention commitment (β=-.338, p<0.001) is .114, with the F-value reaching statistical significance (p<0.001). Apparently, job stress has a significantly negative influence (p<0.001) on the retained personnel in terms of value/retention commitment. H4-1 and H4-2 are consequently sustained (i.e., job stress exerts a significantly negative influence on the retained personnel's organizational commitment).

Job stress as a mediator in the relation between organizational downsizing and organizational commitment

To verify the mediating effect of job stress, this study's author examined whether the following three required conditions of regression equation are satisfied, as recommended by Baron & Kenny (1986): (1) the antecedent variable has a significant forecasting effect on the mediator variable; (2) the antecedent variable has a significant forecasting effect on the outcome variable; (3) a full mediating effect exists if the antecedent variable demonstrates an insignificant forecasting effect when included in the regression model simultaneously with a mediator variable; a partial mediating effect exists if the forecasting effect of antecedent variable becomes significant in the regression model.

H5 in this study is "Job stress is a mediator in the relation between organizational downsizing and organizational commitment". Judging from the results of a hierarchical regression analysis of organizational downsizing and organizational commitment versus job stress in Table 16, job stress satisfies the required conditions proposed by Baron & Kenny (1986) to verify mediating models (Shun-yu Chen, 2005).

Table 16 A regression analysis of organizational downsizing and job stress versus organizational commitment

Variable	Job stress		Organizational commitment			
	Model 1		Model 2		Model 3	
	β	t	β	T	β	t
Organizational downsizing	-.172	-3.479**	.365	7.816***	.301	6.900***
Mediator						
Job stress					-.372	-8.515***
R^2	.030		.133		.267	
ΔR^2	.027		.131		.264	
F	12.102**		61.093***		72.509***	

n=399; *p < .05. **p < .01. ***p < .001.

Model 2 from Table 16 shows a significantly positive forecasting effect of organizational downsizing on organizational commitment (β=.365, p<.001), which satisfies the first required condition. Downsizing exerts a significantly negative forecasting effect on job stress, or the mediator variable (β=-.172, p < .01), satisfying the second condition. For the verification of the third condition, organizational downsizing and job stress were simultaneously included into the regression model. It was found that the forecasting effect of job stress remained significant for organizational commitment (β=-.372, p < .001) but noticeably decreased for organizational downsizing (β=.301, p < .001). Therefore downsizing has a partial influence on organizational commitment due to the intervening progress of job stress, with the explanatory power increased by.133.

CONCLUSIONS

Table 17 is a summary of test results regarding the five hypotheses, where the first two are partially substantiated and the remaining three fully substantiated. The Table is followed by conclusions and findings.

Table 17 Summary of Hypothesis Testing

Hypotheses	Statements	Substantiated/rejected
Hypothesis 1	**Demographic variables significantly affect the retained personnel's job stress.**	**Partially substantiated**
H1-1	Gender significantly affects the retained personnel's job stress.	Substantiated
H1-2	Seniority significantly affects the retained personnel's job stress.	Partially substantiated
H1-3	Ranks significantly affect the retained personnel's job stress.	Substantiated
H1-4	Job-transfer experiences significantly affect the retained personnel's job stress.	Rejected
H1-5	Educational attainment significantly affects the retained personnel's job stress.	Partially substantiated
H1-6	Marital status significantly affects the retained personnel's job stress.	Partially substantiated
Hypothesis 2	**Demographic variables significantly affect the retained personnel's organizational commitment.**	**Partially substantiated**
H2-1	Gender significantly affects the retained personnel's organizational commitment.	Substantiated
H2-2	Seniority significantly affects the retained personnel's organizational commitment.	Substantiated
H2-3	Ranks significantly affect the retained personnel's organizational commitment.	Substantiated
H2-4	Job-transfer experiences significantly affect the retained personnel's organizational commitment.	Rejected
H2-5	Educational attainment significantly affects the retained personnel's organizational commitment.	Partially substantiated
H2-6	Marital status significantly affects the retained personnel's organizational commitment.	Substantiated
Hypothesis 3	**Organizational downsizing significantly affects the retained personnel's perceived job stress.**	**Fully substantiated**
H3-1	Organizational downsizing significantly affects the retained personnel's perceived physical stress.	Substantiated
H3-2	Organizational downsizing significantly affects the retained personnel's perceived psychological stress.	Substantiated
H3-3	Organizational downsizing significantly affects the retained personnel's perceived change in interpersonal relationships.	Substantiated
Hypothesis 4	**The perceived job tress significantly affects the retained personnel's organizational commitment.**	**Fully substantiated**
H4-1	The perceived job tress significantly affects the retained personnel's value commitment.	Substantiated
H4-2	The perceived job tress significantly affects the retained personnel's retention commitment.	Substantiated
Hypothesis 5	**Job stress is a mediator in the relation between organizational downsizing and organizational commitment.**	**Fully substantiated**

Source: author of this study

1. The relation between demographic variables and job stress, organizational commitment:
   Except "job-transfer experiences", all of the demographic variables led to significant difference in both job stress and organizational commitment (i.e., H1 and H2 are both partially substantiated).

2. The relation between organizational downsizing and job stress:
   This study reveals a significantly negative influence of Taiwan's military downsizing on the retained personnel in terms of all job stress aspects, which means the retained personnel perceive an increase in either the post-downsizing physical/psychological stress or the change in interpersonal relationships. It is believed that the country's frequent organizational downsizing efforts drastically cut the armed forces personnel without alleviating either the workload or the required process compliance. Facing an increased workload, the retained workers felt frustrated and developed enormous stress, both physically and psychologically, besides conflicts against supervisors and colleagues. As Shih-hung Chang (2004) proposed, the less aware an employee is of organizational changes, the greater job stress he/she perceives. Chung-yui Huang (2008) discovered a significantly negative connection between military personnel's *perception of downsizing* and *job stress*. What Chang and Huang argued, to a large extent, matches the empirical findings of this study (H3 fully substantiated).

3. The relation between job stress and organizational commitment:
   This study suggests that job stress has a significantly negative influence on all aspects of perceived organizational commitment. That is, an increase in job stress is negatively linked to the retained personnel's perceived value/retention commitment, a sign that how the retained personnel react to post-downsizing stress always affects their loyalty to the organization. Meanwhile, Jenn-shing Sher (2004) found a significantly negative connection between Taiwanese military hospital staff's perception of stress and organizational commitment. Jian-ou Zhang (2008) concluded that the job stress perceived by Taiwanese military intelligence and national security personnel is negatively related to their organizational commitment. What Sher and Zhang argued, to a large extent, matches the empirical findings of this study (H4 fully substantiated).
4. In this study, organizational downsizing has a significantly negative influence on job stress, which means the retained personnel perceived greater stress after the Taiwanese military implemented organizational downsizing and personnel reduction programs. Meanwhile, the significantly positive influence of downsizing on organizational commitment signals that, after the military downsizing and personnel reduction were implemented, the retained personnel developed distrust with the organization, hence the decline in commitment. Job stress was found to affect organizational commitment in a negative manner, which means an increase in job stress is linked to a decrease in the retained personnel's organizational commitment. Downsizing has a significantly positive influence on organizational commitment, but it may also exert a significantly negative effect on it through the intervening stress reactions. In other words, the retained personnel would perceive greater job stress when they feel their rights are threatened by downsizing, and subsequently increase loyalty to the organization in an all-out effort to keep their jobs. Apparently, the mediating effect of stress reactions may result in the negative influence of downsizing on organizational commitment (H5 fully substantiated).

Managerial significance of this study and recommendations

1. Cautiously evaluate the downsizing efforts
   Unlike a business entity, the military organizational framework involves "warfare, weaponry, organization and training", namely the upcoming warfare patterns and the required weaponry. Personnel of varied professionalism are deployed and trained under that framework before eventually being put to the test of battlefields. Whether or not the personnel stand such a test has a great effect on national security as well as people's livelihood. The authorities that make downsizing policies, therefore, is supposed to consider the future forms of war and the organization's sustainability, to follow cautious steps to weigh the pros and cons of the organization's existing practices, and to determine a properly downsized organizational/personnel structure that supports warfare-related tasks.

2. Reduce job stress with simplified operating processes
   The operating processes of Taiwan's government agencies have long been restricted by onerous regulations, rules, standard processes, projects, forms, among other bureaucratic formalities. That explains why the military downsizing either forces the resignation of base-level retained personnel overwhelmed with the growing job stress and workload, or makes them less committed to the organization. It is advised that policy-makers in the military authorities seek alternatives for the post-downsizing personnel shortage (e.g., the outsourcing of clerical, base-level works, the expansion of information technology-based equipment, the development of information-handling processes, or

anything that improves the labor-intensive, complicated operating patterns). With information management being incorporated into the organization's operating processes, military personnel will feel less stressed and work efficiently as the organization bolsters its effectiveness.

3. Improve organizational commitment with an emphasis on management development
   If an organization's performance assessment system is able to measure the members' performance in an impartial and fair manner while providing them with appropriate rewards, it will convince the retained personnel that hard workers always receive a fair reward. Because the armed forces are characterized by a massive and complicated organization designed to tackle warfare with varied professional staffers, they should establish standardized management processes suitable for each specific department, and ensure the retained personnel grow one step at a time into the desired talent. Not only does such a management process serve as a motivator for retained personnel to learn harder and perform better on job, it also underscores their long-term goals and organizational commitment.

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