Impact of work-life imbalance on job satisfaction and quality of life among hospital nurses in Japan

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Abstract: This study investigated the status of work-life imbalance among hospital nurses in Japan and impact of work-life imbalance on job satisfaction and quality of life. A cross-sectional survey of 1,202 nurses (81% response rate) was conducted in three Japanese acute care hospitals. Participants were divided into four groups for actual work-life balance (Group A: 50/50, including other lower working proportion groups [e.g., 40/50]; Group B: 60/40; Group C: 70/30; and Group D: 80/20, including other higher working proportion groups [e.g., 90/10]). We also asked participants about desired work-life balance, and private and work-related perspectives. Satisfactions (job, private life, and work-life balance), quality of life, and stress-coping ability were also measured. All data were compared among the four groups. Most nurses sensed that they had a greater proportion of working life than private life, and had a work-life imbalance. Actual WLB did not fit compared to desired WLB. When the actual working proportion greatly exceeds the private life proportion, nurses' health could be in danger, and they may resign due to lower job satisfaction and QOL. Simultaneous progress by both management and individual nurses is necessary to improve work-life imbalance.

Key words: Work-life imbalance, Work-life balance, Hospital nurses, Job satisfaction, Nurses' quality of life

Introduction

Improvement of nurses' working environment is an important issue as working conditions can adversely affect nurses' health and cause them to resign from their jobs and the profession itself. Nurses are indispensable providers who maintain and improve people's health. In order to deliver high-quality patient care, maintaining nurses' health and reducing nurse turnover rates are important[1].

While there are many issues in a working environment, work-life balance (WLB) has attracted attention in recent years. WLB refers to the management of the actual and desired proportion of one's work and private-life activities[2, 3]. "Actual" refers to the proportion spent on either work or private-life activities and "desired" refers to the proportion one wishes to spend on those activities. Recently, various working practices have sought to accommodate individual life events (e.g., marriage, childbirth, and providing care for parents). Overall quality of life (QOL) can be enriched by enhancing both work and private life (e.g., learning, volunteer activities)[3]. Work efficiency can also be improved by maintaining a good WLB, which results in high productivity[4].

The Japanese Cabinet has proposed the "Work-Life Bal-

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ance Charter"[5], and a national effort has been launched to improve WLB. The Japanese Nursing Association has also listed the improvement of nurses' working environment as its primary mission[6]; it is conducting nationwide workshops to promote WLB[7] and is publishing a guidebook on WLB to promote its understanding and improvement. However, awareness of WLB is still low among nurses[8, 9]. Although previous surveys of nurses have revealed that WLB was associated with lower job satisfaction[8] and mental health[9], the ability to generalize these results is limited because such studies were conducted by a single institute. Along with being overworked, the unmatched state of desired and actual WLB could indicate work-life imbalance. However, research about work-life imbalance and impact on job satisfaction is limited.

In addition, the impact of work-life imbalance on QOL has not been verified. In terms of nurses' QOL, influencing factors include job satisfaction, stress level, workload, irregular shift rotation, job title, age, years of experience, and economic issues[10–13]. Thus, while the connection between the working environment and QOL has been extensively investigated, little research has investigated the impact of work-life imbalance on QOL.

Finally, there is a high turnover rate among nurses in Japan, and many nurses do not return to work after resigning from a nursing post[14]. The potential nursing shortage has become a serious problem. Because Japan is the world's fastest ageing society[15], there will be a shortage of young (i.e., new) nurses in the future. It is important to encourage current nurses to remain in their positions and continue their professional careers. One way to contribute to this effort is to improve WLB.

Aim

This study was undertaken in several acute care hospitals in Japan to investigate the following topics concerning nurses: 1) current WLB status, and 2) the impact of work-life imbalance on job satisfaction and QOL.

Subjects and Methods

Participants and locations

The selection criteria for the field research sites were as follows: 1) being an acute care hospital, 2) having approximately 500 beds, and 3) being either a teaching or a general hospital. A cross-sectional survey was conducted in the three selected hospitals from November to December 2013 in Akita prefecture, Japan. All nurses were recruited from the hospitals to avoid selection bias.

Procedure

The first author explained the study's purposes and potential benefits of the feedback resulting from the analyses to the directors of the nursing sections at each hospital and obtained consent to conduct the study. We confirmed with each nursing department the numbers of units and nurses within each unit; we then distributed questionnaires to each unit. The unit managers subsequently distributed the questionnaires to the nurses. Each questionnaire was put in an envelope before being collected in a box; this box was placed in the nursing office for 2 wk. The office was locked when nursing staff were not there. The box had a small drop opening to collect the envelopes; once they were inside the box, the envelopes were not accessible or visible during the collection period because the box was sealed. Over the 2 wk, the unit managers sent out reminders to the nurses to complete the questionnaire.

Demographic data

Based on previous research[8, 9], the following demographic data were collected: age, sex, marital status, household role (child care, etc.), educational level, years of nursing experience, job title, unit type, shift type, and working hours.

Measurements

Based on the concept of WLB in the Work-Life Balance Charter by the Japanese Cabinet[5], our study goals were to determine the balance between the actual proportion of work and private life, and to understand desired WLB. Thus, we asked nurses to report their actual work and private life proportions as well as their desired proportion. Work proportion and private life proportion sum to 100%, and the proportion was expressed in units of 10. We did not specifically define WLB time span (e.g., in the past 1 or 6 months, or 1 d); this was because we wanted to obtain a general understanding of the WLB proportion. The term "proportion" was used rather than "real time." One week consists of 168 h; excluding contracted working hours/wk (37.5 h) and sleeping time (8 h × 7 d=56 h), this would leave 74.5 h. Therefore, the "real time" for work and private time would not be quite 50/50. Subsequently, for this study, the sense of "proportion" of that work and private life time was used rather than the real time.

WLB satisfaction was measured on a 4-point Likert scale from 1 (*not at all satisfied*) to 4 (*very satisfied*) based on Hancke *et al.*[16], and higher scores indicated greater WLB satisfaction. Asking about WLB satisfaction also allowed the satisfaction of each proportion to be assessed.

Job satisfaction was examined using the Job Satisfaction Scale developed by the National Institute for Occupational Safety and Health (NIOSH), which is part of the Centers for Disease Control and Prevention in the United States. The Japanese version of this scale has well-established reliability and validity[17] and consists of four items. The total score ranges from 4 to 13, and higher scores indicate greater job satisfaction. In this study, Cronbach's alpha was 0.67. Private life satisfaction was measured on a 4-point Likert scale from 1 (*not at all satisfied*) to 4 (*very satisfied*). This was originally developed by the authors based on one of the items from the Job Satisfaction Scale: "How satisfied are you with your private life?" Higher scores indicated greater private life satisfaction.

The 26-item World Health Organization Quality of Life (Japanese) scale was also used[18]. This includes 24 questions that assess four domains ("physical health," "psychological health," "social relationships," and "environment") and two questions providing an "overall" assessment. Scoring for each question and each domain ranges from 1 to 5 points, and a mean can be calculated for each domain. Higher scores indicate a better QOL. In this study, Cronbach's alpha was as follows: "overall" (0.62), "physical" (0.73), "psychological" (0.76), "social relationships" (0.59), and "emotional" (0.76).

The Sense of Coherence (SOC) questionnaire was used to measure nurses' ability to cope with stress. The SOC was originally developed by Antonovsky (1987)[19], and a Japanese edition has also been developed[20]. The SOC's 13 questions are scored on a 7-point Likert scale, and the total score ranges from 13 to 91 points. Higher scores indicate greater ability to cope with stress. In this study, Cronbach's alpha was 0.78.

Data analyses

To investigate nurses' current WLB status, actual WLB proportion was divided into four groups: Group A (50/50, including other lower working proportion groups [e.g., 40/50]), Group B (60/40), Group C (70/30), and Group D (80/20, including other higher working proportion groups [e.g., 90/10]). Desired WLB was also divided into these four groups. The fit rate between actual and desired WLB was then calculated; this refers to the percentage of respondents who rated "actual" as equal to "desired."

To determine confounders, the demographic data were compared across the four actual WLB groups (i.e., demographic data were classified into personal and work-related perspectives). An analysis of variance (ANOVA) was used for age, years of nursing experience, hours of work, and annual leave acquisition rate. For the remaining data, a χ^2 test was used.

The analysis of covariance (ANCOVA) was used for all satisfactions, QOL, and stress-coping ability among the four actual WLB groups. Controlling for baseline data, covariates (childcare role, job title, unit type, and hours of work) were selected for the ANCOVA. The Tukey-Kramer method was then used as a post-hoc test for differences between all pairs of groups; this is the most powerful test to detect significant differences. The JMP 10 software package (SAS Institute) was used to perform the statistical tests. The significance level was set at $p<0.05$.

Based on the central limit theorem[21] definition, as all actual WLB groups contained more than 100 participants, parametric methods were used to analyze the data for all groups.

Ethical considerations

This study was approved by the ethics committee of Akita University, Japan (No. 1094). Participants received a written copy of the study objectives and methods, which included the following: 1) as an advantage, the ability to assess WLB by responding to the questionnaires; 2) as a disadvantage, the time spent responding to the questionnaires; 3) notice that participation was voluntary; 4) notice that refusal to participate would not influence their job; 5) notice that questionnaire responses were anonymous; 6) notice that their privacy was strictly protected; and 7) notice that the data would be presented only in aggregated form in professional journals. Returning the questionnaire was regarded as consent to participate in the study.

Results

The survey was conducted in three hospitals (two teaching and one general). The questionnaire was distributed to all nurses (n=1,480) working in the hospitals. Responses were obtained from 1,202 nurses (81% response rate).

The participants' attributes are shown in Table 1. The mean age was 37 ± 11 yr, and most participants were women (93%). Half of the respondents were married. The most common household role was housework (74%). The mean experience as a nurse was 15 ± 12 yr. For educational background, nursing school level (without a degree) was the most common (62%). For job title, staff nurse was the most common (77%). Ward (63%) and three shift rotations (60%) were the most common unit and shift types, respectively. Most participants were regular full-time em-

Table 1. Nurses' demographic characteristics and work-life balance status (n=1,202)

Contents		Mean ± SD or Number (%)
Personal perspectives		
Age (n=1,181)		37 ± 11
Sex (n=1,199)	Women	1,116 (93)
Marital status (n=1,195)	Unmarried	524 (44)
	Married	604 (51)
	Divorced, etc.	67 (5)
Household role (n=1,188)	Childcare	426 (36)
	Housework	880 (74)
	Caring for an older relative	113 (10)
Work-related perspectives		
Years of nursing experience (n=1,180)		15 ± 12
Education (n=1,195)	Master's level	8 (0.5)
	Bachelor's level	229 (19)
	Diploma level	210 (18)
	Nursing school (without degree)	742 (62)
	Other	6 (0.5)
Job title (n=1,195)	Sister or senior staff nurse	183 (15)
	Staff nurse	922 (77)
	Other	90 (8)
Type of employment (n=1,197)	Full time, permanent	1,122 (94)
	Part time, etc.	75 (6)
Unit type (n=1,191)	Ward	751 (63)
	Operation theatre/intensive care unit	132 (11)
	Outpatient department, etc.	308 (26)
Shift type (n=1,197)	3-shift rotation	721 (60)
	2-shift rotation	177 (15)
	Day shift, etc.	299 (25)
Fixed shift (n=1,141)	Yes	466 (41)
Hours of work per week (n=944)		42 ± 13
Annual leave acquisition rate (n=520)		23 ± 22
Do you currently attend school or take courses? (n=1,193)	Yes	21 (2)
Work-life balance status		
Actual work-life balance (n=1,046)	50/50 including lower groups	188 (18)
(Work/Private)	60/40	206 (19)
	70/30	344 (33)
	80/20 including higher groups	308 (30)
Desired work-life balance (n=1,077)	50/50 including lower groups	933 (86)
(Work/Private)	60/40	105 (10)
	70/30	33 (3)
	80/20 including higher groups	6 (1)

ployees (94%), and the hours of work per week were 42 ± 13. Annual leave acquisition rate was 23 ± 22%. Only 2% of nurses were studying while working.

Regarding the distribution of the four actual WLB groups, the majority of nurses were in Group C (70/30; 33%) and Group D (80/20, including higher groups [e.g., 90/10]; 30%). In contrast, for the distribution of desired WLB, the majority of nurses desired 50/50 or less (86%; Table 1). The fit rate of the WLB proportion between actual and desired WLB was less than 5% in Groups B, C, and D. Group A's fit rate was highest (36%) as displayed in Fig. 1.

For personal perspectives (Table 2), a significant difference was found for marital status and childcare role among the four actual WLB groups. The nurses in Group A tended to be married and responsible for childcare. For the work-related perspectives (Table 2), a significant difference was
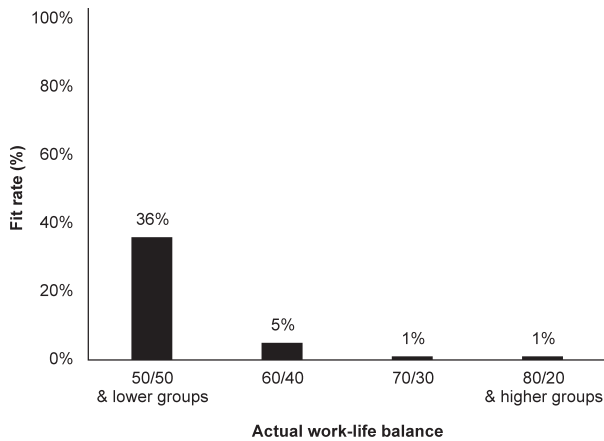
Fig. 1. Fit rate of work-life balance proportions.
"Fit rate" refers to the percentage of respondents who rated their "actual" and "desired" work-life balance proportions as equal.

found for job title, unit type, shift type, fixed-shift rotation, hours of work, and annual leave acquisition rate. Nurses in Group A were more likely to be staff nurses, work in an outpatient department, work the day shift and a fixed shift, have fewer working hours, and have a high annual leave acquisition rate.

In relation to job satisfaction and private life satisfaction (Table 3), Groups A and B were not significantly different, and were significantly more satisfied with their jobs than Group D. For WLB satisfaction (Table 3), Group A was significantly more satisfied with their WLB than all other groups. In contrast, Group D was significantly less satisfied than all other groups.

For QOL (Table 3), Group A scored significantly better in the all subscales than Groups C and D. In contrast, Group D was significantly worse in all subscales than all other groups. Groups A and B were not significantly different except for physical health, while Groups C and D were not significantly different. For SOC (the measure of stress-coping ability), Group A had a significantly higher score than all other groups. In contrast, Group D had a significantly lower score than all other groups (Table 3).

Discussion

We investigated hospital nurses' WLB and the impact of work-life imbalance on job satisfaction as well as QOL. Most nurses sense that they have a greater proportion of working life than private life, and that they had work-life imbalance. Their actual WLB did not fit compared to the desired WLB. For this study, Groups B (60/40), C (70/30), and D (80/20, including higher groups) had poor WLB fit.

However, job satisfaction and QOL were unsatisfactory only in Groups C and D. Nurses could be in danger of health problems and resigning from their jobs because of lower job satisfaction and poor QOL[11, 12]. Job satisfaction and nurses' QOL are also very closely related to the quality of nursing care[22–25]. Improvements to nurses' work-life imbalance could result in better patient outcomes and quality of care.

The ideal actual WLB involves an equal balance between work and private life because of higher satisfaction (in job, private life, and WLB) and QOL. The fit rate was also highest for this equal-balance group. Here, the mean number of working hours does not exceed the contracted working hours (37.5/wk). The annual leave acquisition rate is also high, although the level is still much lower than the national standard[26]. In reality, 60/40 is respectable because job satisfaction and QOL are better compared to other higher working proportion groups.

A good WLB occurs when nurses sense a 50/50 proportion between work and private life. According to our result, maintaining a good WLB means not being overworked and having a high acquisition rate of annual leave. However, for hospital working nurses, another perspective needs to be considered. Because 24-h continuous patient care is essential in hospitals, most nurses are forced to undertake shift work. Depending on the coordination of the shift work (e.g., lack of adequate time between shifts, more than 5 d of continuous shifts, etc.), nurses might sense a heavy proportion of work even though it is within their contracted working hours. Development of a better shift rotation system is also needed to promote nurses' WLB. In addition, many work-related perspectives were significantly different among the actual WLB groups. Some factors here may affect WLB, but a prospective study is needed with a controlled baseline to confirm these factors.

In the general Japanese working environment, the culture is based on the amount of time spent working[27] rather than on the quality of the work produced, and our results support this view. Although a policy to improve this culture has been launched, the current state of WLB among nurses has not reached preferred levels. Some nurses initially desired an extremely excessive work proportion and actually overworked; these nurses could be considered workaholics. Considering that one young nurse has already died as a result of extreme overwork[27], it will be difficult to maintain nurses' health if this situation is not improved.

Regarding stress-coping ability, our results are comparable to a previous report on the association between SOC and successfully balancing work and family life among married nurses[28]. High stress-coping ability influences the

Table 2. Personal and work-related perspectives comparison for each work-life balance (actual) (n=1,046)

Contents	Work-life balance (actual)				p-value
	50/50 & lower groups (n=188)	60/40 (n=206)	70/30 (n=344)	80/20 & higher groups (n=308)	
Personal perspectives					
Age (n=1,035)	38 ± 12	35 ± 11	36 ± 11	36 ± 11	-
Sex (n=1,045)					
Women	174 (93)	194 (94)	319 (93)	285 (93)	-
Marital Status (n=1,043)					
Unmarried	66 (35)	92 (45)	152 (44)	151 (49)	
Married	107 (57)	106 (52)	175 (51)	137 (44)	0.02*
Divorced, etc.	15 (8)	6 (3)	16 (5)	20 (7)	
Household role					
Childcare (n=1,025)	86 (48)	172 (36)	125 (37)	91 (30)	0.002**
Housework (n=1,044)	146 (78)	145 (70)	253 (74)	224 (73)	-
Caring for older person (n=1,039)	15 (8)	20 (10)	23 (7)	32 (10)	-
Work-related perspectives					
Years of nursing experience (n=1,094)	15 ± 12	13 ± 11	14 ± 11	14 ± 12	-
Education (n=1,041)					
Master's level	1 (0.5)	2 (1)	2 (0.6)	2 (1)	
Bachelor's level	31 (17)	41 (20)	71 (21)	64 (21)	
Diploma level	37 (20)	37 (18)	68 (20)	52 (17)	-
Nursing school (without degree)	116 (62)	124 (60)	199 (58)	190 (61)	
Other	1 (0.5)	2 (1)	1 (0.4)	0 (0)	
Job title (n=1,043)					
Sister or senior staff nurse	22 (12)	20 (10)	62 (18)	65 (21)	
Staff nurse	146 (78)	167 (81)	261 (76)	232 (75)	<0.001**
Other	18 (10)	19 (9)	20 (6)	11 (4)	
Unit type (n=1,039)					
Ward	98 (53)	127 (62)	238 (70)	191 (62)	
Operation theatre/intensive care	18 (10)	21 (10)	30 (9)	55 (18)	<0.001**
Outpatient department, etc.	69 (37)	58 (28)	73 (21)	61 (20)	
Shift type (n=1,044)					
3-shift rotation	88 (47)	129 (63)	227 (66)	184 (60)	
2-shift rotation	30 (16)	33 (16)	45 (13)	50 (16)	<0.001**
Day shift, etc.	70 (37)	44 (21)	71 (21)	73 (24)	
Fixed shift? (n=1,000) Yes	98 (54)	76 (38)	108 (33)	119 (41)	<0.001**
Hours of work per week (n=842)	37 ± 13	42 ± 12	44 ± 13	43 ± 14	<0.001**
Annual leave acquisition rate (n=468)	30 ± 28	19 ± 16	19 ± 20	23 ± 22	0.002**
Do you currently go to school or take courses? (n=1,043) Yes	5 (3)	5 (2)	2 (0.5)	7 (2)	-

The items of age, nursing experience, annual leave acquisition rate, and working hours are expressed as mean ± SD. Other items are expressed as a number (%). "-" refers to not significant; *p<0.05; **p<0.01

maintenance of a good WLB as an individual trait. It is stressful when one's actual-work proportion exceeds their desired-work proportion. The ability to cope with stress can be increased with support from people with high SOC[29]. Future research should investigate the coping methods of people with a high ability to cope with stress and maintain a good WLB. Such research will provide valuable information on maintaining a good WLB at an individual level.

Unlike Tanaka's surveys[8], this study included older nurses who were married. However, our results were the opposite of their results due to childcare; here, many nurses with childcare responsibilities had good WLB. While their geographic

Table 3. Comparison of satisfactions, QOL, and stress-coping ability for each work-life balance (actual) (n=1,046)

Contents	Work-life balance (actual)				ANCOVA (*p*-value)	Post-hoc test (Tukey-Kramer test) (*p*-value)					
	50/50 & lower groups	60/40	70/30	80/20 & higher groups		A vs. B	A vs. C	A vs. D	B vs. C	B vs. D	C vs. D
	Group A (n=188)	Group B (n=206)	Group C (n=344)	Group D (n=308)							
Job satisfaction (n=1,031)	9.4 ± 1.6	9.0 ± 1.6	8.8 ± 1.5	8.5 ± 1.7	0.003**	-	**	**	-	**	-
Private life satisfaction (n=1,044)	1.9 ± 0.6	1.8 ± 0.6	1.7 ± 0.6	1.5 ± 0.5	<0.001**	-	**	**	-	**	**
Work-life balance satisfaction (n=1,045)	2.7 ± 0.7	2.3 ± 0.6	2.2 ± 0.6	1.9 ± 0.7	<0.001**	**	**	**	-	**	**
Quality of life											
Overall (n=981)	3.1 ± 0.7	2.9 ± 0.7	2.9 ± 0.7	2.6 ± 0.7	<0.001**	-	*	**	-	**	**
Physical (n=974)	3.3 ± 0.6	3.1 ± 0.5	3.0 ± 0.5	2.9 ± 0.5	<0.001**	*	**	**	-	**	**
Psychological (n=975)	3.1 ± 0.5	2.9 ± 0.5	2.9 ± 0.6	2.7 ± 0.6	<0.001**	-	*	**	-	**	**
Social (n=970)	3.3 ± 0.5	3.2 ± 0.5	3.2 ± 0.6	3.1 ± 0.6	0.009**	-	*	**	-	**	*
Environment (n=973)	3.1 ± 0.5	3.0 ± 0.5	3.0 ± 0.5	2.8 ± 0.5	<0.001**	-	*	**	-	**	**
Stress-coping ability (n=1,026)	53 ± 10	50 ± 9	49 ± 10	46 ± 10	<0.001**	*	**	**	-	**	**

All items are expressed as mean ± SD. Controlling for baseline data, covariates (childcare role, job title, unit type, and hours of work) were selected for the ANCOVA. When the ANCOVA reached statistical significance, the Tukey-Kramer test was used as a post-hoc test. "-" refers to not significant; *$p<0.05$; **$p<0.01$

research area included a proliferation of nuclear households, our geographic research area included many people who lived in households with extended family members, such as grandparents[30]. Hence, the nurses in this study were in an environment where it was relatively easy to receive family support, which may have influenced our results.

In Japan, there are also too few options for hospital nurses within the shift system. In other countries, there is variety in employment; for example, a person may work only night shifts[31], or participate in a job-sharing situation in which two nurses are employed in one job, each working half the hours and splitting the salary[32]. This may be one reason why Japanese nurses have a lower rate of earning master's degrees than nurses in other countries[33]. Although graduate study is essential for improving the quality of care[34], the current conditions make it difficult to pursue advanced education.

Limitations of this study

One limitation of this study was its cross-sectional design, making it difficult to establish causality. A future prospective study is necessary to explore factors of work-life imbalance. The survey was also conducted only in one region, although our study did include multiple institutes. While these results do not represent the current state of WLB for all hospital nurses throughout Japan, the impact of work-life imbalance on job satisfaction and QOL is certain.

Implications for management and individual nurses

For management, WLB can be improved by offering diverse working patterns, securing additional personnel, and promoting individual awareness. For individual traits, nurses who do maintain a good WLB perform countermeasures, and knowledge of these should be shared with more nurses in order to change the overall working culture. Simultaneous progress by both management and individual nurses will accelerate WLB improvement.

Conclusion

We verified nurses' current WLB status and the impact of work-life imbalance on job satisfaction and QOL. Most nurses were overworked and in a state of work-life imbalance. Work-life imbalance decreases job satisfaction and QOL, and might affect both the quality of care and nurses' overall health. The improvement of WLB by both management and individual nurses is essential.

Acknowledgements

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