Workplace Fun in Chinese Hospitals: Scale Development and Validation

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Abstract

Data indicate that workplace fun can promote organizational behavior among employees. Due to the lack of specific measurement tools, this suggestion has not been further studied in hospital working environments. In order to rectify this, a questionnaire was constructed and assessed for its usefulness through using qualitative and quantitative analytical approaches. Questionnaire survey data (N = 514; 183 face-to-face, and 331 online) were collected from the medical staff and hospital administrators of two Chinese public hospitals and analyzed using exploratory factor analysis and confirmatory factor analysis. The exploratory factor analysis favored a solution using three-dimensions, including 14 items to measure workplace fun, and the results of confirmatory factor analysis showed the appropriateness of the scale. The scale also returned good reliability measurements. This is the first reliable and valid scale to measure workplace fun in Chinese hospitals. In the future, the scale can be used to explore the impact of pleasure in the hospital workplace on the attitude, behavior, and performance of hospital employees.

Key Words: *Workplace fun, pleasure, Chinese hospital, scale development*

Introduction

With the development of greater social awareness and improvement of economic status, people have begun to pursue other needs. Work is an important element in people's lives, and working in a pleasant environment has gradually become more highly valued by employees and their supervisors. Data have indicated that a pleasant working environment is more attractive to job seekers than pay and promotion (Tews et al., 2012), leading companies to focus on meeting employees' other needs.

Providing for pleasure in the workplace has become more prevalent in businesses (Abdullah et al., 2016; Karamfilov, 2018). Researchers suggest that companies should create a fun work environment, including pleasure activities, as this would make employees happier and healthier (Michel et al., 2019).

Hospitals are places to provide patients with medical treatment, nursing, and rehabilitation care. Their staff provide services for disease treatment and prevention. Creating a working environment that helps to meet the physical and mental needs of hospital employees has attracted the attention of hospital administrators and scholars. A pleasant workplace reduces hospital manager anxiety, promotes nurses' health, and provides job satisfaction, among other things (Bae & Kim, 2019; Kang, 2018).

Theories about workplace enjoyment are covered by affective event theory and social exchange theory. Social exchange theory is the mainstream theory used in organizational management research. Organizations provide working conditions and remuneration, and employees repay the organization by performing their duties and obligations, thus forming a kind of interdependent exchange relationship (Rhoades & Eisenberger, 2002). The organization's activities, such as celebration activities, convey the organization's recognition of employees (Tews et al., 2014), encourage colleagues' social contact, and express the organization's support for its employees (Han et al., 2016). Based on this, employees develop an emotional attachment to the organization (Becker & Tews, 2016). By sharing exciting events with employees, managers convey care and support to employees, and employees are willing to repay their leaders, thus exhibiting more organizational citizenship behaviors (Cooper et al., 2018). Employees' participation in such activities means that they are willing to carry out social communication with the organization (Michel et al., 2019; Tang et al., 2017), thus forming a good

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exchange relationship at work. Social exchange theory, based on a "reciprocity norm," is an essential framework to explain the mechanism of organizational environmental factors, which is also the theoretical basis of this study.

The most frequently used workplace measurement of pleasure is McDowell's (2004) four-dimensional scale. Other single-dimension and three-dimension measurement scales have been suggested (Ford et al., 2003; Karl et al., 2005; Tews et al., 2014). The existing measurement scales show good reliability in empirical studies, but there are still deficiencies in content validity and dimension design (Plester et al., 2015). At present, few researchers have proposed a scale to measure fun in the hospital workplace, and the purpose of this study is to develop an instrument to measure it.

Methodology
Conceptual Framework and Hypotheses
From a review of the literature and interviews of experts, the conceptual framework illustrated in Figure 1 was developed.

Figure 1 *Conceptual Framework*
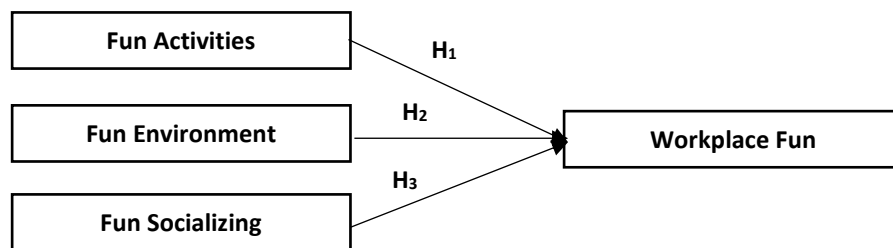
Three hypotheses regarding the posited relationships between the independent and dependent variables are as follows:

H_1 Fun Activities have a significant positive impact on Workplace Fun.
H_2 A Fun Environment has a significant positive impact on Workplace Fun.
H_3 Fun Socializing has a significant positive impact on Workplace Fun.

A mixed research method was adopted to develop and validate a scale suitable for measuring workplace fun. A five-step procedure was used: (a) to define hospital work fun and explore its connotation; (b) to form the initial dimensions and pool of items for the scale; (c) to revise and adjust the measurement items; (d) to analyze, verify, and validate the scale using collected data; and (e) to finalize the scale items (Netemeyer et al., 2003; Niyomsilp & Sompong, 2019).

A qualitative approach, including a literature review and expert interviews, was used to form the initial dimensions and items pool for the scale, and expert consultation was used to evaluate its content validity. A quantitative approach, involving a questionnaire survey, was adopted to collect data. The data were analyzed using Exploratory Factor Analysis (EFA) to test the structural validity of the scale, and Confirmatory Factor Analysis (CFA) was used to confirm the results of EFA. These data also were used to analyze the scale's reliability (Creswell & Creswell, 2017).

Initial Item Collection
The initial items used came from two sources—a literature review, and semi-structured in-depth interviews. The expert consultation method was used to filter the initial items collected.

The measurement scale developed from the literature review morphed from a single dimension to multi-dimensional. The single-dimensional scale focused on the form of fun activities initiated by the organization. For example, the scale developed by Ford et al. (2003) identified 10 forms of fun activities (10 questionnaire items), and that of Karl et al. (2005) contained 11 activities (26 questionnaire items). The multidimensional scale was based on two forms of fun—manager-led and

employee-led. McDowell (2004) first developed a four-dimensional workplace fun scale consisting of 24 items incorporating Celebrating at Work, Socializing with Coworkers, Personal Freedoms, and Global Fun at work. Tews and colleagues' scale (2014) contained 14 items covering three dimensions (Fun Activities, Coworker Socializing, and Manager Support for Fun). Chinese researchers developed a four-dimensional scale (Social Fun, Relaxing Fun, Auxiliary Pleasure, and Welfare Fun) with 19 items in total (Wang et al., 2017).

Semi-structured in-depth interviews provided the other source of initial items. According to Creswell and Poth (2016), there is no specific number of participants who might be interviewed. However, the number of participants depends on the qualitative research approach (Creswell & Creswell, 2017). Using a purposive sampling method, a total of 20 people from five hospitals were interviewed including deans, doctors, directors of the nursing department, head nurses, and nurses. A variety of questions were used, such as, "In your work environment, what situation makes you feel happy?"; "Have you ever organized activities in the hospital that make you happy?" and "Which department organized these activities?" Through these interviews, scale dimensions were provided and became the source of the items used. Interviewees volunteered to participate in this research. Following the interviews, the text data was generated, followed by analysis and evaluation. The initial items and dimensions are shown in Table 1.

Table 1 *Initial Items and the Dimensions of the Workplace Fun Scale*

Dimensions	Number	Items
Fun Activities	FA1	Competition involving professional knowledge and skills
	FA2	The advanced collective and individual Award Presentation Ceremony
	FA3	Anniversary activities related to personal events (e.g. birthdays, hiring/promotion anniversaries)
	FA4	Celebration activities of festivals or special events (e.g. International Nurses Day, Physician's Day)
	FA5	Outward bound (e.g. thematic education activities, sports games, outings, picnics)
	FA6	Activities that are physically relaxing and psychologically pleasing (e.g. mental health consultation, art appreciation meeting, cultural and artistic performance)
	FA7	Mini-games held during lunch break
Fun Environment	FE1	Create a pleasant natural environment and landscape for the hospital
	FE2	Decorate department regularly to create a pleasant working environment
	FE3	Provide relaxing lounges (e.g. coffee shop, a gourmet bar)
	FE4	Provide recreational venues and facilities (e.g. gyms, basketball courts)
	FE5	Personal music is allowed in the work area
Fun Socializing	FS1	Encouraging small talk with coworkers
	FS2	Sharing stories from your life and work with coworkers
	FS3	Visiting coworkers' family members when special events occur (e.g. coworkers' family members who are sick, coworkers are sent to other places for work)
	FS4	Providing opportunities for people in the community to come to the hospital to do volunteer activities (e.g. college students, volunteers)
	FS5	Socializing with coworkers at work
	FS6	Socializing with coworkers outside of work
	FS7	Sharing food with coworkers at work meal times

The expert consultation method was used for the preliminary selection of items. In reports of scale development, the widely reported approach for content validity is the content validity index (CVI) (Zamanzadeh et al., 2015). The CVI refers to the content validity ratio (CVR) average of all the remaining items. The content validity ratio (CVR) is the index of the items to retain or delete, and the formula is

CVR = (Ne - N/2)/(N/2), in which the Ne is the number of experts indicating "quite relevant" and "highly relevant", and N is the total number of experts. A 4-point ordinal scale was used to evaluate measurement items in terms of clarity and their relevancy to the construct underlying study. A CVR of not less than .80 represents the content validity of the better items.

According to Creswell and Creswell (2017), 13 experts were optimal. The following were invited: three hospital administrators, six nursing administrators, three chief physicians, and one psychology professor. Inclusion criteria for experts were that they had worked in this field for more than 10 years, had a master's degree or above, and had a senior professional title.

Item Analysis

The critical ratio (CR), computations of item-total correlation, and a homogeneity test were used to re-screen the items of the scale to improve its reliability and validity (Kanget al., 2019). The CR uses the independent samples *t*-test to examine the difference in each item between high and low groups (the top 27% and the bottom 27% of the total score); items with *t*-values of not less than three and *p* values of less than .05 were retained. The item-total correlation involved: (a) calculating the correlation coefficient between each item and the total score, and keeping the items with *r* values of not less than .40, and a *p* value of less than .05; (b) calculating the correlation coefficient between each item and the sum of the others, and retaining items with *r* values of not less than .40. The homogeneity test involved calculating the Cronbach's coefficient after unacceptable items were deleted and applying Exploratory Factor Analysis. This was completed using the principal component analysis method. Items were retained with a commonality of not less than .20, and factor loading of not less than .45.

Tests of Validity and Reliability of the Scale
Population and Sample

One hospital was selected for investigation from each of the eastern, western, southern, northern, and central regions of Sichuan Province. The number of employees who worked in the five hospitals was 12,365. Selection criteria were: (a) full-time staff at the hospital, (b) working in the hospital for more than one year, and (c) voluntarily participating in the research. Employees who had been on leave for three consecutive months before the survey were excluded. Based on the principle that the sample size needs to be 10 times the number of entries (Boateng et al., 2018), and factoring in an estimated loss of 20%, a total of 514 employees were selected using a convenience sampling method. These employees included doctors, nurses, technicians, pharmacists, and hospital administrators.

Measurement

A questionnaire survey was conducted consisting of two parts. The first part involved the demographic characteristics of the participants, and the other section was the revised scale after expert consultation and item analysis. The rating of each item was on a 5-point Likert-type scale, from *Strongly Disagree* = 1, *Disagree* = 2, *Neutral* = 3, *Agree* = 4, to *Strongly Agree* = 5.

Data Collection

Data were collected from July to September 2020. Before data collection, the informed consent of the participants and the permission of the hospital's personnel department management were obtained.

Two groups of data were used to test the validity and reliability of the scale. The first group of data was used for EFA and reliability tests, and the other was used for CFA. First, 200 questionnaires were distributed to hospital employees who met the inclusion criteria through a face-to-face survey; 183 valid questionnaires were recovered (91.5% valid response). In the second stage, data were collected through a network questionnaire. A total of 331 valid questionnaires were recovered (94.6% valid response).

Data Analysis

SPSS 26.0 software was used for statistical analysis. Among the demographic characteristics data, those consistent with the normal distribution were described by mean ± standard deviation, and non-normal distribution items were described by median and quartile. Critical ratio and correlation analysis were used to test item differentiation and homogeneity of the scale. Expert consultation was used for content validity analysis, including the calculation of the Item-level content validity index (I-CVI) and the scale-level content validity index (S-CVI). In this study, S-CVI/UA (the percentage of items receiving three or four from all experts against the total number of items on the scale) and S-CVI/Ave (mean values of I-CVI for all items in the scale) were used to test S-CVI (Polit et al., 2007). EFA was used to analyze the structural validity of the scale. Cronbach's coefficient was used to evaluate the reliability of the scale.

Amos 22.0 software was used as a statistical tool for CFA to verify the results of EFA and confirm the structural validity of the scale.

Results
Demographic Characteristics

The overall response rate was 93.5% from the 550 questionnaires that were distributed. The majority of respondents (70.9%) were female with a mean age at 35.2 years (SD = 6.62); the age range varied from 21 to 57 years. The predominant educational level (69.9%) was at the bachelor level. A majority (66.9%) worked in hospital wards and 81.3% had experience greater than five years. Predominant professional qualifications of participants (91.5%) were at the primary and intermediate levels.

Thirteen experts were invited for the consultation (mean age 40.2, SD = 5.12). The majority of them (66.9%) were female, their predominant education level (79.9%) was at the master and doctor degree level, and 80.3% of the experts had worked for more than 20 years. All were at the senior professional level.

Item Analysis Results

The CR values were 9.29 to 24.58, which meant that the results were significant ($p < .01$). Homogeneity was determined by calculating the product difference correlation coefficients between each item and the total score of the scale. In this study, the coefficient values were 0.39 to 0.88, and the results were significant ($p < .01$).

Validity Analysis Results
Content Validity Results

In this study, experts used a 4-point method to evaluate each item. A score of 1 meant that an item was *Not Relevant*, 2 meant that it was *Somewhat Relevant*, 3 meant *Relevant*, and 4 meant *Very Relevant*. The results of the content validity were considered acceptable after five items (FA7, FE5, FS5, FS6, and FS7) were deleted. The I-CVI was between .84 and 1.00, S-CVI /UA was .88, and S-CVI /Ave was .96.

Construct Validity Results

The premise of factor analysis is to ensure the commonness or connection between variables, and only variables with a close correlation can be classified to extract common factors. The most common method to determine the existence of this prerequisite is the Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test of Sphericity. Among them, the closer the KMO value is to 1.0, the stronger is the commonality between the measured variables, and the more suitable for factor analysis. The lower the significance level of Bartlett's Sphericity Test, the more suitable it is for common factor extraction. In this study, the KMO test coefficient value of the sample data was .89, and the significance level of Bartlett's Sphericity Test was less than .001, indicating that the original data were closely correlated and could be used for factor analysis.

Exploratory Factor Analyses

In the principal component analysis, the total interpretation rate of cumulative variance reached 63.9%, and the extracted principal component covered most of the information on the variable, and had good explanatory ability (Table 2).

After orthogonal rotation, the factor loading matrix was obtained. It can be seen from Table 3 that the standardized factor loading coefficient of the measurement items lay between .70 and .90. In line with an accepted measurement standard greater than .60, and the scale had good structural validity (Table 3).

Table 2 *Total Variance Explained (N = 183)*

| Component		Initial Eigenvalues	Cumulative		Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings	
	Total	Variance %	%	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	6.21	44.4	44.4	6.21	44.4	44.4	3.46	24.7	24.7
2	1.55	11.1	55.4	1.55	11.1	55.4	2.78	19.9	44.5
3	1.19	8.5	63.9	1.19	8.5	63.9	2.71	19.4	63.9
4	0.80	5.7	69.6						
5	0.68	4.9	74.5						
6	0.64	4.6	79.1						
7	0.48	3.4	82.5						
8	0.46	3.3	85.8						
9	0.40	2.9	88.7						
10	0.37	2.7	91.3						
11	0.35	2.5	93.8						
12	0.34	2.4	96.2						
13	0.31	2.2	98.4						
14	0.22	1.6	100.0						

Confirmatory Factor Analyses

Confirmatory factor analysis was used to verify the structural validity of the scale. Fourteen items were taken as observation variables to establish the structural equation model, and the maximum likelihood method was adopted to carry out model estimation. A path diagram was drawn with three factors (Fun Activities, Fun Environment, and Fun Socializing) as potential variables. The model showed a good fit statistically, forming a confirmatory factor analysis model (Figure 2).

Table 3 *Rotated Component Matrix*[a]

Items	Component		
	1	**2**	**3**
FE1		.77	
FE2		.74	
FE3		.71	
FE4		.74	
FA1	.72		
FA2	.66		
FA3	.64		
FA4	.72		
FA5	.75		
FA6	.74		
FS1			.75
FS2			.74
FS3			.79
FS4			.74

Note. [a] Rotation converged in six iterations. Extraction method: Principal Component Analysis; rotation method: Varimax with Kaiser Normalization.

Figure 2 *Confirmatory Factor Analysis Model*
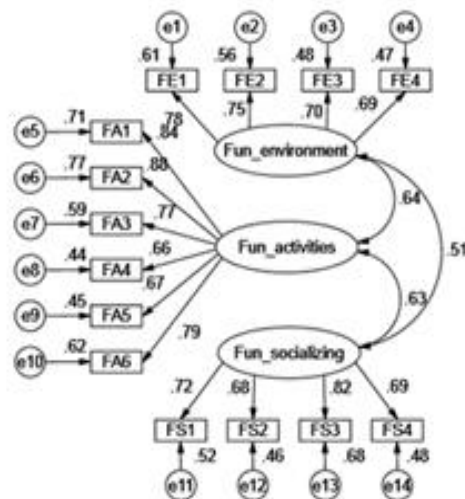
According to Wu (2010), a CFI value of $>$ .90 and an RMSEA value of $<=$ .08 are indicative of an acceptable model fit. In the CFA model, the model fit indices were good: $\chi2/df$ = 3.283, RMSEA = .08 and CFI = .93 (Table 4).

Table 4 *The Model Fitting Index (N = 331)*

Model	χ^2	*df*	χ^2/df	PGFI	IFI	CFI	RMSEA
Three Factors	242.95	74	3.28	.64	.93	.93	.08
Two Factors	460.32	76	3.03	.58	.84	.84	.12
One Factor	679.69	77	8.83	.54	.75	.75	.15

Discriminant Validity Analyses

Discriminant validity analysis assesses differences among the dimensions. In this study, the values of the average variance extracted (AVE) of the three dimensions were as follows: the value of Fun Socializing was 0.53, the Fun Activities was 0.59, and the Fun Environment was 0.53. The italicized bold values are the square roots of AVE for each. To test discriminant validity (Fornell & Larcker, 1981), the square root of the AVE value of each dimension itself is compared to see if it is greater than its correlation coefficient with other dimensions. At the same time to avoid multicollinearity, it is generally required that the correlation coefficient between constituent dimensions be less than 0.85. From Table 5, the correlation coefficients of dimensions are all less than 0.70, which is less than the square root of AVE. Thus, all of these dimensions had good discriminant validity.

Table 5 *Discriminant Validity Analysis*

Dimensions	AVE	Fun Socializing	Fun Activities	Fun Environment
Fun Socializing	.53	*.73*		
Fun Activities	.59	.63	*.77*	
Fun Environment	.53	.51	.64	*.73*

Reliability Analysis Results

The reliability analysis of the scale with 14 items showed a Cronbach's coefficient of .90. The dimensions of fun activities, fun environment, and fun socializing were .87, .82, and .82, respectively.

Composite reliability was used to verify the reliability of the scale. According to the standards of Raine-Eudy (2000), when the composite reliability value of items reaches .50, the measurement tools could reflect the true fraction stably. This author recommended an average variance extracted (AVE) of greater than .50. In this study, a composite reliability greater than .60 was adopted. The AVE value reflects the aggregation degree of a latent variable that is effectively estimated by a set of measurement indicators. When the AVE square root value of each dimension is greater than the correlation coefficient with other dimensions, it has discriminant validity (Table 6).

Table 6 *The Composite Reliability Analysis (N = 331)*

Dimensions	Items	Unstandardized Estimate	*SE*	*z*	*p*	Standardized Estimate	SMC	C.R.	AVE
	FA1	1.00				0.84	.71	.9	.6
	FA2	1.06	.05	20.05	***	0.88	.77		
	FA3	1.03	.06	16.39	***	0.77	.59		
Fun Activities	FA4	0.86	.06	13.31	***	0.66	.44		
	FA5	0.80	.06	13.4	***	0.67	.44		
	FA6	0.98	.06	16.83	***	0.79	.62		
	FE1	1.00				0.78	.61	.82	.53
Fun Environment	FE2	0.86	.07	12.83	***	0.75	.56		
	FE3	0.94	.08	11.95	***	0.7	.48		
	FE4	0.91	.08	11.79	***	0.69	.47		
	FS1	1.00				0.72	.52	.82	.53
Fun Socializing	FS2	0.92	.08	11.14	***	0.68	.46		
	FS3	1.19	.09	12.98	***	0.82	.68		
	FS4	0.97	.09	11.33	***	0.69	.48		

The Final Version of the Scale

The final version of the scale was established (Table 7); there were 14 items and three dimensions. Five items were eliminated from the initial list (Table 1).

Table 7 *The Final Version of the Scale*

	FA1	Competition involving professional knowledge and skills
	FA2	The advanced collective and individual Award Presentation Ceremony
	FA3	Anniversary activities related to personal events (e.g. birthdays, hiring and promotion anniversaries)
Fun Activities	FA4	Celebration activities of festivals or special events (e.g. International Nurses Day, Physician's Day)
	FA5	Outward bound (e.g. thematic education activities, sports games, outings, picnics)
	FA6	Activities that are physically relaxing and psychologically pleasing (e.g. mental health consultation, art appreciation meeting, cultural and artistic performance)
	FE1	Create a pleasant natural environment and landscape for the hospital
Fun Environment	FE2	Decorate department regularly to create a pleasant working environment
	FE3	Provide relaxing lounges (e.g. coffee shop, a gourmet bar)
	FE4	Provide recreational venues and facilities (e.g. gyms, basketball courts)
	FS1	Encouraging small talk with coworkers
	FS2	Sharing stories from your life and work with coworkers
Fun Socializing	FS3	Visiting coworkers' family members when special events occur (e.g. coworkers' family members who are sick, coworkers are sent to other places for work)
	FS4	Providing opportunities for people in the community come to the hospital to do volunteer activities (e.g. college students, volunteers)

Discussion

Ford et al. (2003) first outlined the benefits of workplace fun, which refers to an organization that encourages, promotes, and supports a variety of interesting activities to stimulate positive attitudes and behaviors of individuals and teams. After integrating the research results of several researchers, Fluegge-Woolf et al. (2014) proposed that workplace pleasure refers to pleasant activities that occur inside and outside the workplace. Such activities are directly or indirectly related to work tasks and are characterized by sociality, interpersonal interactions, and task appropriateness. Based on the cultural background of Chinese hospitals, taking into account the organizational characteristics of hospitals and the particularity of hospital working environments, the study findings are supported by the concept proposed by Fluegge-Woolf and colleagues.

This research provides some practical recommendations for managing the working environment in Chinese hospitals. First of all, hospital managers should consider building a fun workplace for their employees. The application of the proposed scale in the Chinese hospital industry could provide managers with detailed guidelines to help them better establish a pleasant working environment. In particular, fun activities may become prioritized in the workplace, as the EFA results indicate that the "fun activities" factor has the strongest capacity to explain the variance obtained (44.4%). The results were similar to those of other researchers, who found that fun activities promoted enjoyable learning among nurses (Baid & Lambert, 2010), increased engagement among entry-level employees in the hospitality industry (Becker & Tews, 2016), and fun activities were significantly related to overall informal learning (Tews et al., 2017).

The second recommendation is that it may cost a lot of money to create a fun environment, such as increasing activity venues for employees' leisure, purchasing fitness equipment for employees to exercise, and renovating the natural landscape inside the hospital. However, the EFA results show that the "fun environment" factor had a considerable capacity to explain the variance (11.1%), indicating that generating fun in the workplace is also related to the fun environment. This result is similar to the findings of others (Chan & Mak, 2016; Gu et al., 2020). Therefore, it is suggested that hospital managers need to provide–as far as possible–the necessary financial support to transform working environments.

A third recommendation based on this study's findings is related to the difficulty in extending fun socializing to all Chinese hospitals. Due to the differences between Chinese and Western cultural backgrounds, fun socializing is not as highly recognized as found by Western researchers (Becker & Tews, 2016; Jamaludinet al., 2016). The possible reason is that workload of medical staff in China is relatively large, and they do not have sufficient time and energy to socialize with co-workers. Meanwhile, the traditional culture of China advocates the concept of family affection, so Chinese employees pay more attention to the social activities between relatives. This may help to explain why the "fun socializing" factor was only able to explain the variance (8.5%) in the present study.

Limitations and Future Research

The major limitation of this study is that the data were collected through convenience sampling, which means that the participants were selected according to the researcher's convenience. In addition to introducing bias into the sample, convenience sampling makes it difficult to identify differences in fun among different administrative departments and clinical units in the hospital. On account of the increasing number of private hospitals in China, the data obtained in this study need to be extended before greater applicability can be claimed.

Conclusion

This study is one of the first to explore workplace fun in the hospital industry, and attempted to establish an appropriate scale that could be applied to measure pleasure in Chinese hospital workplaces. Following a five-step process of scale development and using qualitative and quantitative analytical approaches, a three-dimensional measurement based on a 14-item scale was developed to assess workplace fun in the Chinese hospital industry context. These three dimensions reflect that hospital workplace pleasure is embodied in fun activities, fun environments, and fun socializing. The 14 items were further refined, and the reliability and validity of the scale were found to be satisfactory. The results help enrich the connotation of hospital workplace fun, and contribute to future research on the antecedent variables and consequences of creating a pleasurable hospital workplace.

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