

Burnout prevalence and its associated factors among Chinese webcasters

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Additional data availability information:

Burnout prevalence and its associated factors among Chinese webcasters

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Abstract

Background: Webcaster is a young and high-income job, with a low barrier to entry, attracting a large number of people entering, however, huge job stress, job-related health problems, lack of labour and social security are leading to a wide unhealthy employee turnover. Data on the prevalence of burnout in webcaster are very limited. This study aims to investigate the prevalence and correlates of burnout among Chinese webcaster.

Methods: A total of 358 webcasters were recruited from three companies in Changsha, China. Socio-demographic information, career-related factors, job stress, interpersonal support, and burnout were collected by a self-design questionnaire through online platform.

Results: Nearly half (46.09%, 95% CI: 40.90 ~ 51.02%) of the webcasters met the high burnout criteria. In multiple logistic regression analysis, risk factors associated with burnout include lower education (junior high school and below: OR=9.87), cyber violence (OR=6.79), losing fans (OR=4.37), longer live broadcast duration (>8h per day: OR=3.57), negative performance appraisal (OR=2.61), longer resting (OR=2.56), low income (OR=2.41), live broadcasting time at day (OR=2.30), higher seniority (OR=2.34), job stress (OR=1.19). The protective factor is interpersonal support (OR=0.83).

Conclusions: Burnout is prevalent in Chinese webcasters. Dynamic risk factors include losing fans, longer live broadcast duration, negative performance appraisal, low income and daily live broadcast time, as well as job stress. Static risk factors include lower education, cyber violence, and higher seniority. The protective factor is interpersonal support. these findings may contribute to the risk management and health promotion of webcaster's burnout.

Keywords: Burnout; Career-related factors; Interpersonal support; Job stress; Webcasters.

Background

Webcaster is defined as a person who broadcasts live over the internet. The rapidly increasing webcasting industry embodies a great economic value. The total amount of financing and the market size related to the webcasting industry have reached 6.23 billion and 193.03 billion, respectively (China Internet Network Information Center, 2020). The webcasting industry brings a huge number of job opportunities and webcaster as a high-income job attracts a large number of people entering. A survey about the income of webcaster in China shows that 93% of webcasters have a monthly income above 4500 Chinese Yuan (CNY), equal to 706 dollars, which is much higher than 2682 CNY of the national per capita income (IiMedia Data Center, 2020). Meanwhile, this job has a low barrier to entry. On one hand, with the optimization and upgrading of the internet communication technology, smartphone and applications, as well as the reduction of holding and use cost, ordinary people have the basic hardware and equipment to be a webcaster. On the other hand, being a webcaster requires almost no special skill training requirement. Hence, the webcaster has developed into an attractive and hot career. By the end of 2020 year, the number of webcasters accounts has reached 130 million in China and new accounts are added to over 43 thousand every day (China Internet Network Information Center, 2020).

Webcaster is a young job. Compared with the developed webcasting operational system, its occupational safety and health administration is still in its infancy. Webcasters are undertaking an excessiveness of working time or burden and a disturbance of working rhythm. Furthermore, some unique working features like keeping

a fixed working posture, rapid decrement of fans amount, abuse from the audience in the broadcast site through the barrage, and failure for work performance appraisal from companies, etc. Unreasonable work arrangements produce a big work pressure and job stress. Long-term overload job stress further leads to a series of health problems. However, the vast majority of webcasters have not received occupational health support except basic medical insurance, or even without any medical insurance from the company. As a result, huge job stress, job-related health problems, lack of labor and social security are leading to a wide unhealthy employee turnover in webcasting companies.

Burnout is a state of physical and mental fatigue of laborers within the service industry due to long-term, high-intensity, and high-load work (Bianchi et al., 2015), characterized by emotional exhaustion, cynicism, and negative self-evaluation (Maslach et al., 2001). Burnout is one of the major outcomes of long-term unresolved job stress, which directly reduces the efficiency and quality of work but as well as harms physical and mental health, for instance, depression or insomnia (Jaegers et al., 2021; Sygit-Kowalkowska et al., 2021). Hence, burnout is not only an indicator of overload burden but also one crucial warning sign of health hazards. Performing intervention before burnout occurs can effectively prevent occupational injuries. However, data on the prevalence of burnout in webcasters are very limited. This leads to insufficient evidence for identifying and early warning burnout among the webcaster population.

How to make job of webcaster become a sustainable long-term career? Job stress, job-related health problems, and deficient labor and health security regimes increase the occupational hazards and shorten the career longevity. Therefore, this study aims to investigate the prevalence and correlates of burnout among Chinese webcasters to provide evidence for making occupational health and safety policies in the webcasting industry.

Methods

Ethical approval and consent to participants

This study was a descriptive cross-sectional survey conducted in three broadcasting companies of Changsha, Hunan. This survey was conducted by WWW.WJX.CN and WENJUAN.COM, which were two secure electronic survey platforms in mainland China. All the procedures of this study were approved by the Medical Ethics Committee of Hunan Normal University (permit number: 2021-283). All participants accepted voluntary participation and obtained electronic informed consent. Informed consents of participants aged 16 to 18 years obtained from their guardians.

Participants

This study was a descriptive cross-sectional survey. Participants were recruited via a random cluster sampling from broadcasting companies of Changsha, Hunan, between Oct. 2021 and Nov. 2021. Inclusion criteria: 1) the full-time webcaster; 2) over 16 years old; 3) a contract was signed with a webcasting company. Exclusion criteria: 1) the part-time webcasters who have not signed a contract with a webcasting company; 2) **infection of certain nervous system related diseases or mental disorders affected their communication function, for instance, general anxiety disorder, major depressive disorder, etc.**

A total of 369 webcasters were recruited from four broadcasting companies to participate in the study. Of which, 11 had missing values on variables and were excluded from the present study resulted in the quailed ratio of 97%. Finally, 358 participants were included in our sample.

Measures

Dependent variable

Burnout. The burnout levels of webcasters were evaluated in the revised Chinese version of the Maslach burnout inventory-human services survey (MBI-HSS) (Zhang et al., 2006). Each item was rated on a 6-point score, ranging from 0 (none of the time) to 6 (every day). MBI-HSS is characterized by three dimensions, namely, 7-item emotional exhaustion (EE), 3-item depersonalization (DP), and 7-item personal accomplishment (PA). We set the mean of each dimension as a critical value. Further, both high-EE and high-DP (above average) were judged as the group with high-burnout (Leigh et al., 2020). Such a criterion has been validated in many studies (Maslach et al., 1981; Rotenstein et al., 2018; Zhang et al., 2021). This study divided Chinese webcasters into a high-burnout group and low-burnout group for follow-up analysis. The Cronbach's alpha coefficients for the MBI-HSS, EE, DP, and PA were 0.96, 0.95, 0.90, and 0.94, respectively, suggesting that the overall measurement was reliable.

Independent variables

Socio-demographic characteristics. Age, gender, education (junior high school and below/high, vocational high, or technical secondary school/junior college/undergraduate), and income were collected.

Career-related factors. Seniority (less than 1 year/more than 1 year), the type of live stream (entertainment webcaster/game webcaster/other), work posture (prolonged standing/prolonged sitting/prolonged walking/no fixed position), the change of fans amount (a great increasement/a slight increasement/no obvious change/an obvious decrement), days for resting per month (less than 4 days/ more than 4 days), live broadcast duration (2-4h/4-6h/6-8h/>8h, preliminary investigations suggested that Chinese webcaster's daily live broadcast duration are at least 2h), live broadcast time (mostly at day/mostly at night), work performance appraisal (positive/negative), cyber violence experiment (Respondents need to answer the question "Have you experienced cyber violence": yes/no).

Job stress. Job stress is conceptualized as an imbalance of an individual's reaction between the individual's abilities and the work environment (Jamal et al., 2000). The scores of job stress of Chinese webcasters were measured by the Job Content Questionnaire (JCQ-22). It was a 22-item self-report scale. Each item was rated on a 4-point score, ranging from 1 (strongly disagree) to 4 (strongly agree). It was used to measure job demands (5 items), job control (9 items), and social support (i.e., supervisor and coworker support, 8 items), respectively (Ikeda et al., 2021). A high total score of job demands and job control suggested a serious level of job stress (Jiang et al., 2019). The Cronbach's alpha coefficients for the JCQ-22, job demands and job control were 0.94, 0.90, and 0.95, respectively, suggesting that the overall measurement was reliable.

Interpersonal support. Interpersonal support refers to some material or spiritual assistance obtained without compensation from social circle. The scores of interpersonal supports of Chinese webcasters were also measured by JCQ-22. It was used to measure job demands (5 items), job control (9 items), and social support (i.e., supervisor and coworker support, 8 items), respectively (Ikeda et al., 2021). A high score of social support

meant a stronger level of interpersonal support (Jiang et al., 2019). The Cronbach's alpha coefficients for social support was 0.95.

Covariates

Age and gender are two covariates in our study which were measured in the content of socio-demographics.

Statistical analysis

SPSS software version 22.0 was used to perform statistical analysis. Socio-demographic and career-related factors were described and compared by t-test or Chi-square test. Multiple logistic regression with a back-step entry of significant variables in the above univariate analysis was used to identify factors significantly associated with burnout. Odds ratios (ORs) and 95% confidence intervals (CIs) were used to **testify** the associations between burnout and factors. The statistical significance level was set at $P < 0.05$ (two-tail).

Results

Participant characteristics

Of the 358 webcasters, 57% of them are female; 68% of them are less than or equal to 25 years old; 38% of them have an educational background of junior college. The detailed socio-demographic characteristics are shown in **Table 1**.

Burnout level of webcaster

As for MBI-HSS score, we found that the average score of emotional exhaustion was 26.29; the average score of depersonalizations was 12.01; the average score of personal accomplishment was 28.24. Then, of the 358 webcasters, 46.09% (165 of 358, 95% CI: 40.90 ~ 51.02%) of them reached high burnout level and 54.91% (193 of 358) of them were low level burnout.

Univariate difference between high- and low-level burnout groups

The detailed socio-demographic characteristic, career-related factors, overall scores of job stress and interpersonal support were shown in **Table 1**. There are differences in burnout levels exist with the following characteristics among Chinese webcasters: educational background ($P < 0.001$), monthly income ($P < 0.001$), seniority ($P < 0.001$), work posture ($P = 0.017$), change of fans amount ($P = 0.013$), the day for resting ($P = 0.001$), live broadcast duration ($P < 0.001$), live broadcast time ($P < 0.001$), work performance appraisal ($P = 0.010$), an experience of cyber violence ($P < 0.001$). Also, significant differences both exist in various scores of job stress or interpersonal support among the population of Chinese webcasters ($P < 0.001$).

Associated factors of burnout among webcasters

Results from multivariable logistic regression (**Table 2**) showed that factors significantly associated with burnout were an educational background of junior college (vs. undergraduate, OR=2.33), high, vocational high, or technical secondary school (vs. undergraduate, OR=3.48), junior high school and below (vs. undergraduate, OR=9.87); an average income of 5000-10000 (vs. > 10000, OR=2.41); seniority of more than 1 year (vs. seniority of less than 1 year, OR=2.34), an obvious decrement of fans amount (vs. a great increase of fans amount, OR=4.37); a more than 4-day for resting (vs. a less than 4-day for resting OR=2.56); a 4-6h-daily live

broadcast duration (vs. 2-4h-daily live broadcast duration, OR=2.81), a 6-8h-daily live broadcast duration (vs. 2-4h-daily live broadcast duration, OR=3.59), a >8h-daily live broadcast duration (vs. 2-4h-daily live broadcast duration, OR=3.57); a daily live broadcast time at night mostly (vs. mostly at day, OR=2.30); negative performance appraisal (vs. positive performance appraisal, OR=2.61); an ever cyber violence experience (vs. no experience of cyber violence, OR=6.79). Also, the difference was significant in job stress scores (OR=1.19) and interpersonal support scores between the two groups of “high-burnout” and “low-burnout” (OR=0.83).

Discussion

Main findings

Nearly half (46.09%, 95% CI: 40.90 ~ 51.02%) of the webcasters met the high burnout criteria. In multiple logistic regression analysis, risk factors associated with burnout include lower education (junior high school and below: OR=9.87), cyber violence (OR=6.79), losing fans (OR=4.37), longer live broadcast duration (>8h per day: OR=3.57), negative performance appraisal (OR=2.61), longer resting (OR=2.56), lower income (OR=2.41), broadcasting time at day (OR=2.30), higher seniority (OR=2.34), job stress (OR=1.19). The protective factor is interpersonal support (OR=0.83).

We divided these associated factors into three categories: dynamic risk factor (losing fans, a longer live broadcast duration, negative performance appraisal, daily live broadcast time, and job stress), static risk factor (education, cyber violence, and seniority), and protective factor (interpersonal support).

Dynamic risk factors

Dynamic risk factors are changeable and provide the opportunity for intervention. Our study finds the dynamic risk factors include losing fans, a longer live broadcast duration, negative performance appraisal, and daily live broadcast time, as well as job stress. Among these factors, almost all are career-related factors except losing fans. An obvious decrement of fans' amount is a strong risk factor for burnout. Losing fans indicates a webcaster makes a mistake at work and it closely associates with work performance appraisal.

Career-related factors are the most concerned and discussed in detail. Compared to webcasters who have a live broadcast at night mostly, having a live broadcast at day mostly was a dangerous factor for Chinese webcasters' burnout, indicating that disturbance of circadian rhythm might be one of the important reasons for Chinese webcasters' burnout (Canadas-De et al., 2015). Excessive live broadcast duration and negative performance appraisal might also aggravate the burnout level of Chinese webcasters, which also indicates the working environment of the webcaster is still immature. Unreasonable work arrangements will result in a reduced work efficiency and some potential occupational hazard and health problem. Through scientific and reasonable planning and arrangements, work pressure and job stress can be alleviated. Hence, establishing a monitoring and control system towards dynamic risk factors will be beneficial for early warning of burnout among webcaster.

Static risk factors

Static risk factors are historical and do not change or passive and not easy to change, which indicates that it is difficult to intervene these factors to reduce the risk of burnout. Our study finds the static risk factors include

education, cyber violence, and seniority. Webcaster with an education background of high school and below shows the highest risk of burnout. **Worries resulted from low education are very common in many kinds of careers.** However, lower education is the biggest risk factor of burnout in our study. This is an interesting phenomenon. Because when webcasters are hired by companies, they were not requiring a high education and which is also not deciding the webcaster income. We think the possible reason is that educational background may play a big role in peer competition and gain promotion in the course of work. Following education, cyber violence is the second biggest risk factor of burnout. Being bullied verbally online is quite common on online social media (Chen et al., 2018; France et al., 2013; Taein et al., 2020). Our study finds that cyber violence is a strong predictor of burnout in Chinese webcasters. For webcaster, cyber violence is difficult to avoid and there is no effective tools, approach, or mechanism to assess and copy with the injures resulted from cyber violence. We think it is necessary to provide regular training on cyber violence response methods, and provide regular psychological examination, as well as mental health services for webcaster. Seniority changes with the working years. But for individual employee, seniority is non-voluntary factor. In the present study, webcasters with more than 1 year of seniority have a higher risk of burnout. We speculate those who has longer seniority might appear poor creativity gradually and cause a decline in interaction or rewards during live broadcasts, thereby leading to burnout. Anyway, it is impossible to reduce the burnout risk through changing static risk factors directly. But this also reminds us that we could use classification management and different kinds of support approaches to control the risk of burnout among webcaster with different risk factors.

Protective factor

Interpersonal support is unlikely to directly cause burnout. A worse interpersonal support can intensify the bad effect of risk factors. However, a good interpersonal support can play a “buffer” effect between job stress and adverse outcomes including burnout. Good interpersonal support helps to reduce the individual traumatic feeling and assessment towards injury of job stress, and increase the self-efficiency and coping ability.

Limitations

First, our statistical model of burnout risk factors has implications for assessing the scale of risk on individual level. However, it needs to be noted there are individual differences in the types and contributions of risk factors between each other. Second, as there is no consensus on the diagnosis of burnout, it is difficult to compare the prevalence of burnout directly. A recent review found that the existing literature used at least 47 different definitions of the prevalence of burnout when using the MBI tool to measure burnout (Rotenstein et al., 2020). Therefore, future studies need to reach a consensus on how to classify different degrees of burnout, thereby comparing with that of other occupations. Finally, we only described a basic situation of burnout but not discussed its three dimensions (namely EE, DP, and PA) in depth. In future research, the relationship between them and specific career-related factors of Chinese webcasters still need to be further analyzed.

Conclusion

Burnout is prevalent in Chinese webcasters. Correlates of webcasters' burnout can be classified into dynamic and static risk factors as well as protective factors. Dynamic risk factors include losing fans, longer live broadcast duration, negative performance appraisal, daily live broadcast time, lower income and job stress. Static risk factors include higher seniority, lower education, and cyber violence. The protective factor is

interpersonal support. These findings above proposed some new ideas that can be further applied to explore an occupational safety and health administration of Chinese webcasters.

Declarations

Ethical approval and consent to participants

All methods were carried out in accordance with relevant guidelines and regulations or Declaration of Helsinki. All the procedures of this study were approved by the Medical Ethics Committee of Hunan Normal University (permit number: 2021-283). All participants accepted voluntary participation and obtained electronic informed consent. **Informed consents of participants aged 16 to 18 years** obtained from their guardians.

Consent for publication

Not applicable.

Availability of data and materials

The datasets generated and analysed during the current study are not publicly available due containing the private information of the participants but are available from the corresponding author on reasonable request.

Competing interests

The authors declare no conflict of interest.

Authors' contributions

Shi Chen and Ziwei Liu contributed equally to the study design and research work. Hanqin Wang and Shang Yang have conducted the survey and wrote the first-draft manuscript. Fushen Zhang have revised it. Xiao Gao finished the statistical analysis.

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Table 1. Characteristics of participants and prevalence rate of burnout by variables

Variables	Total	High-burnout	Rate of high-burnout (%)	χ^2/t	<i>P</i>
<i>N</i>	358	165	46.09		
Gender					
Male	153	64	41.83	1.95	0.162
Female	205	101	49.27		
Age					
16 to 25 years old	242	125	51.65	0.26	0.611
More than 25 years old	116	40	34.48		
Educational background					
Undergraduate	103	32	31.07		
Junior college	137	62	45.26	22.13	<0.001
High, vocational high, or technical secondary school	76	41	53.95		
Junior high school and below	42	30	71.43		
Monthly income (CNY)					
> 10000	106	48	45.28	17.76	<0.001
5000 ~ 10000	176	97	55.11		
< 5000	76	20	26.32		
Seniority					
Less than 1 year	92	26	28.26	15.84	<0.001
More than 1 year	266	139	52.26		
The type of live stream					
Entertainment webcaster	141	71	50.35	2.45	0.293
Game webcaster	122	56	45.90		
Other	95	38	40.00		
Work posture					
Prolonged walking	51	24	47.06		
Prolonged standing	172	82	47.67	10.25	0.017
Prolonged sitting	64	37	57.81		
No fixed position	71	22	30.99		
Change of fans amount					
A great increasement	47	15	31.91	10.85	0.013
A slight increasement	58	23	39.66		

No obvious changes	134	59	44.03		
An obvious decrement	119	68	57.14		
Days for resting per month					
Less than 4 days	235	94	40.00	10.21	0.001
More than 4 days	123	71	57.72		
Daily live broadcast duration					
2-4h	76	22	28.95		
4-6h	120	50	41.67	18.43	<0.001
6-8h	122	69	56.56		
>8h	40	24	60.00		
Daily live broadcast time					
Mostly at night	112	36	32.14	12.76	<0.001
Mostly at day	246	129	52.44		
Work performance appraisal					
Positive	134	50	37.31	6.64	0.010
Negative	224	115	51.34		
Cyber violence					
No	123	22	17.89	59.99	<0.001
Yes	235	143	60.85		
Job stress	38.95±10.52 ^a	-	-	-6.553	<0.001
Interpersonal support	22.60±6.05 ^a	-	-	5.537	<0.001

^a indicate Mean±SD.

Table 2. Associated Factors for burnout among Chinese webcasters

Variables	Univariate		Multivariate	
	OR (95% CI)	<i>P</i>	OR (95% CI)	<i>P</i>
Dynamic risk factors				
Educational background				
Undergraduate	1		1	
Junior college	1.83 (1.07, 3.14)	0.040	2.33 (1.11, 4.88)	0.044
High, vocational high, or technical secondary school	2.60 (1.41, 4.81)	0.004	3.48 (1.50, 8.08)	0.002
Junior high school and below	5.55 (2.52, 12.21)	<0.001	9.87 (3.33, 29.28)	<0.001
Monthly income (CNY)				
> 10000	1		1	
5000-10000	1.48 (0.91, 2.41)	0.064	2.41 (1.23, 4.71)	0.003
< 5000	0.43 (0.23, 0.82)	0.013	0.63 (0.27, 1.49)	0.251
Seniority				
Less than 1 year	1		1	
More than 1 year	2.78 (1.66, 4.64)	<0.001	2.34 (1.09, 5.00)	0.017
Change of fans amount				
A great increasement	1		1	
A slight increasement	1.40 (0.63, 3.15)	0.413	0.68 (0.22, 2.14)	0.537
No obvious changes	1.68 (0.83, 3.39)	0.148	1.47 (0.58, 3.74)	0.071
An obvious decrement	2.84 (1.40, 5.80)	0.004	4.37 (1.64, 11.66)	0.010
Days for resting per month				
Less than 4 days	1		1	
More than 4 days	2.05 (1.32, 3.19)	0.002	2.56 (1.37, 4.79)	0.001
Daily live broadcast duration				
2-4h	1		1	
4-6h	1.75 (0.95, 3.24)	0.073	2.81 (1.16, 6.77)	0.024
6-8h	3.20 (1.73, 5.89)	<0.001	3.59 (1.49, 8.63)	0.007
>8h	3.68 (1.65, 8.22)	0.001	3.57 (1.20, 10.60)	0.037
Daily live broadcast time				
Mostly at night	1		1	
Mostly at day	2.33 (1.46, 3.72)	<0.001	2.30 (1.20, 4.43)	0.018
Work performance appraisal				
Positive	1		1	
Negative	1.77 (1.15, 2.75)	0.014	2.61 (1.39, 4.90)	0.002
Static risk factors				

Cyber violence

No	1		1	
Yes	7.14 (4.20, 12.13)	<0.001	6.79 (3.43, 13.44)	<0.001
Job stress scores	1.07 (1.05, 1.10)	<0.001	1.19 (1.11, 1.27)	<0.001
Protective factor				
Interpersonal support scores	1.07 (1.04, 1.12)	<0.001	0.83 (0.74, 0.93)	0.001

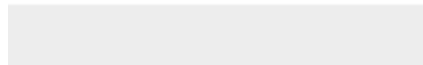


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