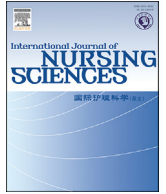


HOSTED BY



Contents lists available at ScienceDirect

International Journal of Nursing Sciences

journal homepage: <http://www.elsevier.com/journals/international-journal-of-nursing-sciences/2352-0132>

Original Article

Predictors of happiness among Iranian nurses

Zahra Khosrojerdi ^a, Zahra Tagharrobi ^b, Zahra Sooki ^b, Khadijeh Sharifi ^{b,*}^a Department of Nursing, Trauma Nursing Research Center, Faculty of Nursing and Midwifery, Kashan University of Medical Sciences, Kashan, Iran^b Trauma Nursing Research Centre, Faculty of Nursing and Midwifery, Kashan University of Medical Sciences, Kashan, IR, Iran

ARTICLE INFO

Article history:

Received 14 January 2018

Received in revised form

18 March 2018

Accepted 28 June 2018

Available online 30 June 2018

Keywords:

Happiness

Iran

Job satisfaction

Mental health

Nurses

Personal satisfaction

Surveys and questionnaires

ABSTRACT

Objectives: This study aimed to assess happiness and its predictors among a group of Iranian hospital nurses.**Methods:** This cross-sectional study was done in 2016 on 620 hospital nurses who worked in five teaching hospitals affiliated to Kashan University of Medical Sciences, Kashan, Iran. Nurses were recruited through the census method. Data collection instruments were a researcher-made demographic and occupational characteristics questionnaire, the Oxford Happiness Inventory, and the Minnesota Job Satisfaction Questionnaire. Data analysis was done through stepwise multiple linear regression analysis. **Results:** Among 620 recruited nurses, 422 returned their questionnaires completely filled. The mean of their happiness was 123.4 ± 18.4 in the possible score range of 29–174. The significant predictors of happiness were satisfaction with mental health, monthly salary, satisfaction with salary, quality of life, current hospital ward, the length of working in the current ward, work shift, age, job satisfaction, and satisfaction with physicians' conduct and performance. These variables explained 50.3% of the total variance of happiness. Satisfaction with mental health had the greatest proportion in explaining the variance of happiness.**Conclusion:** Nurses in teaching hospitals in Kashan, Iran, have moderate happiness. Their happiness is affected by different factors, particularly by satisfaction with their mental health. Health policy-makers and authorities, in developing workforce-related plans and programs, need to pay special attention to nurses' happiness and its contributing factors.© 2018 Chinese Nursing Association. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

1. Introduction

Happiness has different meanings including; momentary joy, long-term joy, and joy at total life [1]. It is among the most basic human needs, the most central motives for human efforts, and the most important strengths of human beings. It promotes creativity, helps individuals more easily attain their goals, improves decision-making ability [2,3], life satisfaction, and quality of life, alleviates negative emotions, promotes physical and mental health, and enables individuals to enjoy their lives [4]. It also helps them achieve success in different aspects of life such as working life and reduces job burnout, absence from work, and intention to leave job [2].

Happiness is of great importance to all professions, particularly the nursing profession [5], because nurses are in direct and

constant contact with the patients and clients whose unique conditions require nurses to be altruistic, self-confident, dedicated, creative, kind, and energetic. All of these attributes are directly linked with happiness [5–7]. On the other hand, daily exposure to patients' pain and suffering, heavy workload, and poor working conditions cause high levels of occupational stress for nurses [8–12]. Occupational stress, in turn, undermines nurses' self-confidence and concentration, increases their irritability, brings them sleep disorders and job burnout, and thereby, negatively affects their happiness and care quality [13–15].

The results of limited studies into nurses' happiness show that nurses have low levels of happiness. For instance, two studies showed that out of a possible score range of 0–5, the happiness mean score of Korean nurses was 3.3 [16] and 2.94 [13]. A study in Iran also showed that the mean score of nurses' happiness was 37.8 out of a possible total score of 87 [7]. On the other hand, the results of studies into the factors contributing to nurses' happiness are contradictory. For instance, some studies reported the significant correlation of happiness with work shift, age [13–17], marital

* Corresponding author. Trauma Nursing Research Centre, Faculty of Nursing and Midwifery, Kashan University of Medical Sciences, 8715988141, Kashan, IR, Iran.

E-mail address: sharif81k@yahoo.com (K. Sharifi).

Peer review under responsibility of Chinese Nursing Association.

status [13–16], physical health status [17], clinical work experience [13], educational status, and physical activity [7]. On the contrary, some studies showed that happiness had no significant correlations with age, clinical work experience [18], gender, and marital status [7,17,18]. Moreover, there is limited data on the predictors of nurses' happiness. Consequently, the present study was designed and undertaken to assess happiness and its predictors among a group of Iranian hospital nurses.

2. Method

2.1. Research design and sampling

As a cross-sectional survey, this study was done in 2016 on hospital nurses who worked in five teaching hospitals affiliated to Kashan University of Medical Sciences, Kashan, Iran. Nurses were recruited through the census method (620 nurses). Eligibility criteria were: consent for participation, university degree in nursing, and employment in hospital as a nurse, a clinical work experience of at least three months, and no managerial position in hospital. Nurses were excluded if they voluntarily chose to withdraw from the study and incomplete happiness questionnaires excluded from analyzing too.

2.2. Measurement tools

Data collection instruments were a researcher-made demographic and occupational characteristics questionnaire, the Oxford Happiness Inventory (OHI), and the Minnesota Job Satisfaction Questionnaire (MSQ).

The first questionnaire included demographic characteristics and occupational characteristics parts. The demographic characteristics part included; 14 items on nurses' age, gender, number of children, marital status, educational status, spouse's employment status, housing type, indigenouness to Kashan, family income, engagement in regular physical activity, engagement in recreational or cultural activities, major stressful life events in the past six months, satisfaction with physical health, and satisfaction with mental health. The occupational characteristics part included 26 items on nurses' official position, employment status, current hospital ward, length of working in the current ward, the level of interest in nursing at the present time and at the time of entering the profession, monthly salary, satisfaction with salary, overtime, the number of overtime hours, work shift, clinical work experience, engagement in recreational activities at workplace, a second nursing job, a second non-nursing job, malpractice insurance coverage, quality of working life, satisfaction with staff number, the level of occupational stress, satisfaction with patients' and family members' feedbacks, satisfaction with the conduct and the performance of physicians, colleagues, head-nurse, and hospital nursing office authorities, and satisfaction with welfare facilities at workplace. This questionnaire was developed based on the existing literature and its face and content validity were assessed by 9 faculty members of Kashan and Sabzevar Universities of Medical Sciences, Kashan and Sabzevar, Iran. The questionnaire was amended based on their comments. The reliability of the questionnaire was evaluated through the test-retest method, in which it was completed twice with a two-week interval by ten hospital nurses who worked in Farabi hospital, Mashhad, Iran. Test-retest agreement was 95.4%.

The second study instrument was the OHI. It contains 29 items in six subscales, namely self-esteem, satisfaction with life, efficiency, positive affect, sense of control, and mental health. OHI items are responded on a Likert-type scale, the six points of which are "Strongly disagree", "Moderately disagree", "Slightly disagree",

"Slightly agree", "Moderately agree", and "Strongly agree". These six points are scored from 1 to 6, respectively. Therefore, the total OHI score ranges from 29 to 174—the higher the score, the greater the happiness. The total OHI score is categorized into three levels and interpreted as follows: less than 100: low happiness; 101–131: moderate happiness; and more than 132: great happiness [19,20]. The validity and reliability of the Persian OHI were upheld in previous studies and its Cronbach's α was reported to be more than 0.90 [19–21]. In the present study, its Cronbach's α was 0.91.

The third questionnaire was the MSQ. The long form of MSQ has one hundred items and its short form has twenty items [22]. We used the short form. All MSQ items are attitude surveying and fall into the three domains of internal (items 1–3, 7, 9, 10, 13, 14, 16, and 20), external (items 5, 6, 8, 11, 17, and 19), and general (items 4, 12, 15, and 18) job satisfaction [23]. Items are answered on a five-point Likert-type scale as follows: "Very dissatisfied": 1; "Dissatisfied": 2; "Neither dissatisfied nor satisfied": 3; "Satisfied": 4; and "Very dissatisfied": 5. The total score of MSQ can range from 20 to 100, where higher scores stand for greater job satisfaction. Moreover, scores 25 and less, 26–74, and 75 and more respectively reflect low, moderate and great job satisfaction. An earlier study in Iran showed the acceptable face and content validity of the questionnaire and demonstrated its high reliability with a Cronbach's α of 0.88 [24]. MSQ Cronbach's α in the present study was 0.82.

2.3. Data collection

For data collection, the first researcher referred to the nursing office of the intended hospitals, explained the aim and the methods of the study to nursing authorities, and obtained necessary permissions for the study. Then, she referred to each hospital ward and got the agreement of its head-nurse. After that and together with two trained research assistants (a seven- and an eight-term bachelor's nursing students), she distributed questionnaires to eligible nurses at the beginning of each work shift, i.e. when nurses had the lowest level of fatigue. Nurses were allowed to personally complete questionnaire during their work shifts. At the end of the shifts, questionnaires were collected.

2.4. Ethical consideration

Necessary permissions and approvals for this study were secured from the Institutional Review Board and the Ethics Committees of Kashan University of Medical Sciences, Kashan, Iran (with the codes of 1395.02.07.9566 and IR. KAUMS.REC.1395.65, respectively). Nurses were provided with explanations about the study and also with the opportunity to personally complete the questionnaires in a private place without the presence of the first author or her two assistants. We also ensured participants about the confidentiality of their data, their right to voluntarily withdraw from the study, and their ability to access study findings. Verbal and written informed consents were obtained from all participants.

2.5. Statistical analyses

Descriptive and analytical data analyses were performed via the SPSS software (v. 16.0). Numerical variables were presented using the measures of central tendency and dispersion, while categorical variables were presented via absolute and relative frequencies. The Kolmogorov-Smirnov test was used for normality assessment. After that, data analysis was done in two steps. In the first step, i.e. Univariate data analysis, the independent-sample *t*-test and the one-way analysis of variance or their non-parametric equivalents, i.e. the Mann-Whitney *U* and the KruskalWallis tests, were used to assess the relationships of happiness with categorical variables.

Moreover, the relationships of happiness with normally and non-normally distributed numerical variables were assessed via respectively the Pearson and the Spearman correlation analyses. In the second step, regression analysis was used to more carefully assess the effects of variables on happiness and also to remove the effects of confounding variables. The dependent variable, i.e. happiness, had normal distribution; thus, stepwise multiple linear regression analysis was employed. Variables with a *P* value of less than 0.2 in univariate analysis were entered into the regression model. The level of significance in all analyses was set at less than 0.05.

3. Results

A total of 620 questionnaires were distributed among 620 nurses, 128 of which were not returned at all and the happiness-related items of 70 questionnaires had been filled out incompletely. Therefore, 198 questionnaires were excluded and data analysis was done on 422 questionnaires. The majority of participants were female (75.1%), married (79.4%), and baccalaureate (90.3%). On average, they aged 33.2 ± 6.2 years and had a work experience of 9.5 ± 5.7 years. The mean of nurses' happiness was 123.4 ± 18.4 out of a possible score range of 29–174.

Univariate analyses revealed that happiness was significantly correlated with marital status, housing type, major stressful life events in the past six months, current hospital ward, work shift, quality of life, the level of interest in nursing at the present time and at the time of entering the profession, age, number of children, engagement in recreational activities, satisfaction with physical and mental health, monthly salary, satisfaction with salary, clinical work experience, satisfaction with staff number in each shift, satisfaction with patients' and family members' feedbacks, satisfaction with the conduct and the performance of physicians, colleagues, head-nurse, and hospital nursing office authorities, satisfaction with welfare facilities at workplace, and job satisfaction (Table 1). However, happiness had no significant correlation with other demographic and occupational characteristics.

The results of multiple regression analysis illustrated that the significant predictors of happiness were satisfaction with mental health, monthly salary, satisfaction with salary, quality of life, current hospital ward, the length of working in the current ward, work shift, age, job satisfaction, and satisfaction with physicians' conduct and performance ($F = 20.45$; P value = 0.0001). These ten variables explained 50.3% of the total variance of happiness. Satisfaction with mental health had the greatest proportion in explaining the variance of happiness (Table 2).

4. Discussion

The present study aimed to assess happiness and its predictors among a group of Iranian hospital nurses. The mean of nurses' happiness was 123.4 ± 18.4 denoting moderate level of happiness among hospital nurses. Similarly, Jun and Jo reported a moderate level happiness among nursing students in South Korea with a happiness mean score of 4.2 ± 0.6 (on a 1–6 scale) [25]. However, Yosefi et al. conducted a study on nurses who worked in hospitals located in Isfahan, Iran, and reported a happiness mean score of 2.2 ± 0.5 (on a 0–24 scale), implying a very low level of happiness [26]. This contradiction may be due to the differences in the instruments, samples, and settings of the studies in that our study was done on both male and female nurses who worked in different hospital wards, while Yosefi et al. recruited only female nurses from some certain hospital wards. Dadghar et al. also reported that hospital nurses in Varamin, Iran, had low happiness with a mean score of 2.7 ± 0.8 (on a 1–6 scale) [27]. All these studies show that

hospital nurses have low to moderate happiness probably due to negative feelings they experience during patient care delivery, difficult work conditions, high workload, ineffective managerial policies, limited managerial support, unfair payments, equipment shortage, and limited career advancement opportunities [25].

Multivariate analyses in the present study showed that desirable quality of life, working in psychiatric wards and in the fixed morning or the evening shifts, shorter length of working in the current ward, older age, higher salary, greater job satisfaction, greater satisfaction with salary, mental health, and physicians' conduct and performance were the predictors of higher levels of happiness among hospital nurses. Similarly, Meng et al. reported positive and negative affects, life satisfaction, and friendly relationships as the predictors of nurses' happiness [6]. The results of another happiness concept analysis study also indicated that personal, work-related, and workplace-related factors were the most principal factors behind nurses' happiness [5]. Jun and Jo also found public sincere admiration of nursing, academic performance, physical health status, and the reasons behind entering nursing as the most significant factors contributing to nursing students' happiness [25].

Satisfaction with mental health was the most significant predictor of happiness in the present study. According to the World Health Organization, mental health consists of subjective well-being, self-efficacy, autonomy, competence, intergenerational dependence, and self-actualization of emotional and intellectual potentials [28]. In line with our findings, a study in Thailand also showed a strong correlation between happiness and mental health [29]. Happiness is the inner feeling of satisfaction which is directly affected by mental health. Therefore, nursing authorities need to employ strategies to improve nurses' happiness by improving their mental health.

Other predictors of nurses' happiness were monthly salary and satisfaction with salary. Previous studies also reported the positive correlation of salary with happiness among different populations [6,29,30]. Higher salary promotes nurses' and their families' welfare and therefore, eases their financial strain, helps them have an easier life, facilitates their task performance, and thereby, gives them a sense of happiness. Beside the amount of salary, satisfaction with salary was also a significant predictor of nurses' happiness. Staff usually compares their own salaries with the salaries of other staff in or out of their organizations. Then, if they observe consistency between their own salaries and other staff's, they feel greater satisfaction with their salaries and greater happiness, and hence, will provide quality care. Moreover, consistency between workload and salary can contribute to their happiness [31].

Study findings also revealed quality of life as another predictor of happiness. According to the World Health Organization, quality of life is "individuals' perception of their positions in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards, and concerns" and includes the four physical, mental, social, and spiritual dimensions [32]. Although we could not find any study into the effects of nurses' quality of life on their happiness, studies in other populations revealed a significant positive correlation between quality of life and happiness. In fact, high quality of life can give individuals the inner feeling of happiness [33,34]. Similarly, an earlier study revealed that physical and spiritual health has great effects on nurses' quality of life and that health-related educations can promote their happiness [35]. Therefore, incorporating such educations in nursing curriculum can improve quality of life and happiness among next generation nurses.

Age and work shift were also among the significant predictors of happiness so that older nurses as well as nurses who worked in the morning or the evening shifts had higher happiness. Previous

Table 1
Happiness score and correlations with demographic characteristics and personal factors among Iranian nurses.

| A: Happiness score based on demographic characteristics and personal factors(binary and nominal variables) | | | | |
|--|------------------------|-----------------------------|--------------------|---------|
| Variables | Categories | Happiness Score (Mean ± SD) | F or t values | P Value |
| Marital status | Single | 118.7 ± 18.1 | 7.25 ^a | 0.001 |
| | Married | 124.9 ± 18.0 | | |
| | Widow | 106.3 ± 27.8 | | |
| Housing type | Private | 124.9 ± 17.8 | 3.30 ^a | 0.020 |
| | Leasing | 122.3 ± 18.6 | | |
| | Governmental | 101.5 ± 50.2 | | |
| | Belonging to relatives | 116.7 ± 20.1 | | |
| Serious stress during past six months | Yes | 120.8 ± 19.4 | −3.20 ^b | 0.001 |
| | No | 126.5 ± 16.7 | | |
| Current hospital ward | ICU | 122.0 ± 19.1 | 4.92 ^a | 0.001 |
| | Surgical | 123.6 ± 18.2 | | |
| | Emergency | 120.6 ± 18.5 | | |
| | Pediatrics | 112.1 ± 17.1 | | |
| | Operation room | 123.3 ± 18.9 | | |
| | Psychiatry | 132.3 ± 14.5 | | |
| | Medical | 128.2 ± 17.6 | | |
| | Outpatient and clinics | 102.2 ± 3.6 | | |
| Interest In Nursing Profession Now | At All | 103.2 ± 7.4 | 8.08 ^a | 0.001 |
| | Very Little | 121.3 ± 22.5 | | |
| | Low | 126.8 ± 13.4 | | |
| | Medium | 119.3 ± 17.7 | | |
| | Much | 128.4 ± 18.6 | | |
| Work Shift | Morning Shift | 128.0 ± 1.0 | 4.25 ^a | 0.001 |
| | Evening/Night Shift | 136.7 ± 7.7 | | |
| | Rotation Shift | 122.4 ± 18.4 | | |
| Quality Of Life | Undesirable | 108.3 ± 16.9 | 34.58 ^a | 0.001 |
| | Semi Desirable | 121.0 ± 17.7 | | |
| | Desirable | 134.2 ± 15.2 | | |

Note: ^a: F ANOVA; ^b: t Independent t-test.

| B: Correlations of happiness score with demographic characteristics and personal factors (Pearson Correlation) | | |
|--|----------|---------|
| Variables | r values | P Value |
| Age | 0.103 | 0.035 |
| Number of children | 0.124 | 0.029 |
| Engagement in recreational activities, | 0.457 | 0.001 |
| Satisfaction with physical health | 0.354 | 0.001 |
| Satisfaction with mental health | 0.444 | 0.001 |
| Monthly salary | 0.207 | 0.001 |
| Satisfaction with salary | 0.273 | 0.001 |
| The amount of clinical work experience | 0.111 | 0.024 |
| Satisfaction with staff number in each shift | 0.154 | 0.002 |
| Satisfaction with patients' and family members' feedbacks | 0.169 | 0.001 |
| Satisfaction with the conduct and the performance of physicians | 0.139 | 0.004 |
| Satisfaction with the conduct and the performance of colleagues | 0.247 | 0.001 |
| Satisfaction with the conduct and the performance of head-nurse | 0.182 | 0.001 |
| Satisfaction with the conduct and the performance of hospital nursing office authorities | 0.291 | 0.001 |
| Satisfaction with welfare facilities at workplace | 0.306 | 0.001 |
| Job satisfaction | 0.332 | 0.001 |

Table 2
The results of multiple linear regressions to determine factors behind nurses' happiness.

| Model | B | SE | 95%CI for B | β | t value | P value |
|---|--------|--------|---------------|--------|---------|---------|
| Constant | 52.151 | 11.420 | 29.63–74.66 | | 4.567 | 0.001 |
| Satisfaction with mental health | 2.255 | 0.580 | 1.111–3.400 | 0.237 | 3.886 | 0.001 |
| Satisfaction with salary | 1.422 | 0.539 | 0.358–2.486 | 0.151 | 2.636 | 0.009 |
| Quality of life | 11.168 | 1.960 | 7.303–15.034 | 0.331 | 5.597 | 0.001 |
| Current ward | 1.584 | 0.396 | 0.804–2.365 | 0.208 | 4.003 | 0.001 |
| Work shift | −3.378 | 1.136 | −5.617–−1.139 | −0.159 | −2.975 | 0.003 |
| Average monthly salary | 2.708 | 1.411 | 0.075–5.491 | 0.106 | 1.919 | 0.056 |
| The length of working in the current ward | −0.788 | 0.252 | −1.286–−0.291 | −0.197 | −3.126 | 0.002 |
| Age | 0.457 | 0.216 | 0.032–0.882 | 0.144 | 2.119 | 0.035 |
| Job satisfaction | 0.280 | 0.110 | 0.062–0.497 | 0.143 | 2.532 | 0.012 |
| Satisfaction with physicians' conduct and performance | −0.871 | 0.422 | −1.704–−0.038 | −0.117 | −2.061 | 0.041 |

Note: $R^2 = 0.503$, $F = 20.446$, $P < 0.0001$.

studies in this area reported conflicting findings. For instance, a study showed a significant correlation between age and happiness among a group of Iranian nursing students [36], while another reported no significant correlation between these two variables [37]. On the other hand, a study indicated that nurses who had not coped with their work shifts had more health problems and therefore, were more likely to endanger patient safety [38]. It seems that compared to their younger colleagues, older nurses are happier because they have greater work experience, more flexible monthly work schedule, and higher official positions. Of course, further studies in this area are needed for producing more conclusive evidence regarding the correlation of happiness with age and work shift.

We also found nurses' satisfaction with physicians' conduct and performance as another significant predictor of their happiness. Although in univariate analysis nurses' satisfaction with the conduct and the performance of physicians, of colleagues, of head-nurse, and of hospital nursing office authorities had significant correlations with happiness, only nurses' satisfaction with physicians' conduct and performance was a significant predictor of their happiness in multivariate analysis. Previous studies also reported the significant correlation of happiness with workplace relationships. Yet, nurse-physician relationships in hospitals are not sufficiently effective and appropriate probably due to the lack of effective relationship-related managerial policies for interpersonal conflict management in hospital settings [39]. Workplace relationships and thereby care quality can be improved through clarifying organizational missions and goals for all hospital staff and developing effective interpersonal conflict management guidelines.

Current ward and the length of working in it were also among the factors contributing to happiness in that nurses who were working in psychiatric wards (Compared to other ward mentioned in Table 1) and nurses who were working in their current wards for shorter periods of time had higher levels of happiness. The studies in this area are limited and with conflicting findings. For instance, a study in Iran showed that the level of happiness among the nurses who worked in general, medical, and thalassemia care wards, dialysis units, and emergency departments was significantly different from that of nurses in other hospital wards [18]. However, two other studies in Iran indicated no significant correlation between nurses' happiness and their current wards [25–40]. Higher happiness among psychiatric nurses in the present study may be due to the different specifications of their work conditions and clients as well as the general atmosphere in psychiatric wards. Conclusive evidence in this area necessitates further studies.

The final factor behind nurses' happiness was their job satisfaction. This is in line with the findings of previous studies [27,41–43]. Happiness is considered as the personal perspective about a favorable and pleasant state [42]. Individuals with more pleasant feelings are more satisfied with their job. In fact, happy individuals evaluate their skills and abilities very positively and remember positive events more frequently than the negative ones. Therefore, they exchange positive energy with others and their environment, improve their relationships with them, and therefore, feel more satisfied with their job, colleagues, and workplace.

Among the strengths of the study was sampling via the census method. Of course, high attrition rate was among the limitations of the study and can limit generalizability of the findings.

5. Conclusion

Study findings indicate that nurses who work in teaching hospitals in Kashan, Iran, have moderate happiness. Their happiness is affected by different factors such as their mental health, monthly salary, satisfaction with salary, quality of life, current hospital ward,

the length of working in the current ward, work shift, age, job satisfaction, and satisfaction with physicians' conduct and performance. Health policy-makers and authorities can use these findings to develop strategies for improving nurses' happiness and thereby, care quality. Given the significant effects of nurses' mental health and quality of life on happiness, future studies are recommended to focus on improving nurses' mental health and quality of life and assessing their effects on nurses' happiness and care quality.

Conflicts of interest

The authors declared no potential conflict of interests respecting the conduction, authorship, and publication of this study.

Funding

This article is part of the master's thesis of the first author in medical-surgical nursing. The thesis had the financial support of the Research and Technology Administration of Kashan University of Medical Sciences, Kashan, Iran.

Acknowledgement

The authors need to thank all hospital nurses who participated in this study as well as the Research and Technology Administration of Kashan University of Medical Sciences, Kashan, Iran.

Appendix A. Supplementary data

Supplementary data related to this article can be found at <https://doi.org/10.1016/j.ijnss.2018.06.008>.

References

- [1] Sharifi K, Sookly Z, Tagharrobi Z, Akbari H. Happiness and its related factors among the students of Kashan university of medical sciences in 2006–7. *Fez* 2010;14(1):62–9.
- [2] Boehm J, Lyubomirsky S. Does happiness promote career success? *J Career Assess* 2008;16(1):101–16.
- [3] Gavin J, Mason R. The virtuous organization: the value of happiness in the workplace. *Organ Dynam* 2004;33(4):379–92.
- [4] Hamid N, Ghaazaei M. Comparison of the mental health, happiness and immune system performance in depressive and normal women. *Int J Psychol Behav Res* 2013;2(3):178–84.
- [5] Ozkara San E. Concept analysis of nurses' happiness. *Nurs Forum* 2015;50(1):55–62.
- [6] Meng R, Luo Y, Liu B, Hu Y, Yu C. The nurses' well-being index and factors influencing this index among nurses in central China: a cross-sectional study. *PLoS One* 2015;10(12).
- [7] Rjabí-Gilan N, Ghasemi S, Reshadat S, Zangeneh A. Happiness in health sector personnel: some demographic and occupational related factors. *J Isfahan Med School* 2015;32(309):1897–906.
- [8] Chen C, Lin C, Wang S, Hou T. A study of job stress, stress coping strategies, and job satisfaction for nurses working in middle-level hospital operating rooms. *J Nurs Res* 2009;17(3):199–211.
- [9] Lambert VA, Lambert CE, Petrini M, Li XM, Zhang YJ. Workplace and personal factors associated with physical and mental health in hospital nurses in China. *Nurs Health Sci* 2007;9(2):120–6.
- [10] Mami S, Mehdian K, Davoodian Z. Investigation of depression rate in nurses working at state hospitals of the city of and its associated factors. *J Ilam Univ Med Sci* 2014;22:51–6.
- [11] Sadeghian F, Javanmard M, Khosravi A, Adelnia S. An epidemiological survey of Low back pain and its relationship with occupational and personal factors among nursing personnel at hospitals of Shahrood Faculty of Medical Sciences. *Iran South Med J* 2005;8(1):75–82.
- [12] Watson R, Deary I, Thompson D, Li G. A study of stress and burnout in nursing students in Hong Kong: a questionnaire survey. *Int J Nurs Stud* 2008;45(10):1534–42.
- [13] Ju EJ, Kwon YC, Nam MH. Influence of clinical nurses' work environment and emotional labor on happiness index. *J Korean Acad Nurs Adm* 2015;21(2):212–22.
- [14] Ohler MC, Kerr MS, Forbes DA. Depression in nurses. *Can J Nurs Res* 2010;42(3):66–82.
- [15] Vargas Dd, Dias APV. Depression prevalence in Intensive Care Unit nursing

- workers: a study at hospitals in a northwestern city of São Paulo State. *Rev Latino-Am Enferm* 2011;19(5):1114–21.
- [16] Nam MH, Kwon YC. Factors influencing happiness index of hospital nurses. *J Korean Acad Nurs Adm* 2013;19(3):329–39.
- [17] Sheikhmoonesi F, Zarghami M, Khademloo M, Alimohammadi MM. Happiness and associated demographic factors among medical students of mazandaran university of medical sciences, 2010. *J Mazandaran Univ Med Sci* 2013;22(97).
- [18] Bagheri F, Akbarizadeh F, Hatami H. The relationship between spiritual intelligence and happiness on the nurse staffs of the fatemeh zahra hospital and bentolhoda institute of boushehr city. *Iran South Medical J* 2011;14(4):256–63.
- [19] Hills P, Argyle M. The Oxford Happiness Questionnaire: a compact scale for the measurement of psychological well-being. *Pers Individ Differ* 2002;33(7):1073–82.
- [20] Najafi M, Dehshiri G, Dabiri S, Sheikhi M, Jafari N. Psychometric properties of farsi version of the oxford happiness questionnaire among college students. *Training Measurement* 2013;3(10):55–73.
- [21] Alipoor a, Noorbala aa. A preliminary evaluation of the validity and reliability of the Oxford happiness questionnaire in students in the universities of Tehran. *Iran J Psychiatry Clin Psychol* 1999;5(1):55–66.
- [22] Brayfield A, Rothe H. An index of job satisfaction. *J Appl Psychol* 1951;35(5):307.
- [23] Kvist T, Mäntynen R, Partanen P, Turunen H, Miettinen M, Vehviläinen-Julkunen K. The job satisfaction of Finnish nursing staff: the development of a job satisfaction scale and survey results. *Nursing Res Practice* 2012:2012.
- [24] Jafarjalal E, Ghafari M, Firouzeh MM, Farahaninia M. Intrinsic and extrinsic determinants of job satisfaction in the nursing staff: a cross-sectional study. *Arvand J Health Med Sci* 2017;2(1):7–14.
- [25] Jun W, Jo M. Factor affecting happiness among nursing students in South Korea. *J Psychiatr Ment Health Nurs* 2016;23(6–7):419–26.
- [26] Yosefi M. Comparison of happiness, psychology well-being and job perfectionism among women nurses of different sections of hospitals in isfahan at 2014. *Sci J Hamadan Nurs Midwifery Faculty* 2015;23(2):52–62.
- [27] Dadghar h, gholamalinejad f, ashoori j, arabsalari z. The relationship leadership styles, organizational commitment and happiness with job satisfaction of nursing. *Sci J Hamadan Nurs Midwifery Faculty* 2015;23(2):5–14.
- [28] World Health Organization. *The World Health Report 2001-Mental health: new understanding, new hope*. Geneva. World Health Organization; 2001. Available from: <http://www.who.int/iris/handle/10665/42390>.
- [29] Yiengprugsawan V, Sombonsook B, Seubsman S-a, Sleight AC. Happiness, mental health, and socio-demographic associations among a national cohort of Thai adults. *J Happiness Stud* 2012;13(6):1019–29.
- [30] Chan C, Wong H, Yip P. Associations of relative income deprivation with perceived happiness and self-rated health among the Hong Kong Chinese population. *Int J Publ Health* 2017;62(6):697–707.
- [31] Kahneman D, Deaton A. High income improves evaluation of life but not emotional well-being. *Proc Natl Acad Sci USA* 2010;107(38):16489–93.
- [32] World Health Organization. *WHOQOL and spirituality, religiousness and personalbeliefs (SRPB)*. 1998. Available from: <http://apps.who.int/iris/handle/10665/70897>.
- [33] Nave Leal E, Pais-Ribeiro JL, Oliveira M. Happiness, hope, and affection as predictors of quality of life and functionality of individuals with heart failure at three-month follow-up. *Psychol Res* 2012;2(9):532–9.
- [34] Susniene D, Jurkauskas A. The concepts of quality of life and happiness—correlation and differences. *Inzinerine ekonomika-engineering economics* 2009;3:58–66.
- [35] Serinkan C, Kaymakçi K. Defining the quality of life levels of the nurses: a study in Pamukkale University. *Social Behav Sci* 2013;89:580–4.
- [36] Jouybari L, Sharifi AN, Sanagoo A, Saeedi S, Saeedi S, Kalantari S. Happiness and its related factors among students in golestan university of medical sciences. *J Nurs Educ* 2017;5(6):40–5.
- [37] Siamian H, Naeimi OB, Shahrabi A, Hassanzadeh R, Abazari MR, Khademloo M, et al. The status of happiness and its association with demographic variables among the paramedical students. *J Mazandaran Univ Med Sci* 2012;21(86):159–66.
- [38] Admi H, Tzischinsky O, Epstein R, Herer P, Lavie P. Shift work in nursing: is it really a risk factor for nurses' health and patients' safety? *Nurs Econ* 2008;26(4):250–7.
- [39] Tjia J, Mazor KM, Field T, Meterko V, Spenard A, Gurwitz JH. Nurse-physician communication in the long-term care setting: perceived barriers and impact on patient safety. *J Patient Saf* 2009;5(3):145–52.
- [40] Rahigheh FA. Descriptive study of nurses' happiness at shahid sadoughi hospital. *Iran. J Mental Disorder Treatment* 2015;1(1).
- [41] Davis G, Bordieri J. Perceived autonomy and job satisfaction in occupational therapists. *Am J Occup Ther* 1988;42(9):591–5.
- [42] Hills P, Argyle M. Happiness, introversion—extraversion and happy introverts. *Pers Individ Differ* 2001;30(4):595–608.
- [43] Ho LS. Hong Kong's happiness indices: what they tell us about LIFE? *J Socio-Economics* 2011;40(5):564–72.