Authors' Response to the Reviewers' Comments

Journal: *Sustainability*

Manuscript number: sustainability-1398706

Title: The experience of emotional labor and its related factors among nurses in general hospital setting in Republic of Korea: a systematic review and meta-analysis

- **Response to Comments from Reviewer 1**

Comment 1:

Unfortunately the current study is not fundamentally changing our understanding of emotional labor. Weak theoretical contribution may be the reason of this. It's not clear how this study advances the existing theories on emotional labor.

Response:

Thank you for your time and effort devoted to reviewing this manuscript. As you pointed out, we agree that this manuscript may have lacked theoretical contribution on emotional labor. We have supplemented understanding of emotional labor in the revised manuscript, so it would be an honor for us if you take this into account and review this manuscript again.

Comment 2:

Another weakness of this study is its methodology. This study is a systematic review rather than a meta-analysis study. Otherwise, which meta-analyses procedures were used (e.g. Hunter and Schmidt's 1990) should be explained etc.

Response:

Thank you for the comment. This comment is understood to mean that the authors should be more specific about the methodology for the meta-analysis. We specifically described the methodology of meta-analysis in this revised manuscript, and also reviewed and cited Hunter and Schmidt's book (2014, Third edition) recommended by the reviewer. (Please see pages 3-4, red words)

"2.5. Data analysis
In our prior protocol, when considering the heterogeneity of potentially included studies, quantitative synthesis was not planned, but there was consensus among researchers that quantitative synthesis was possible in the

process of actual systematic review. Therefore, meta-analyses of emotional labor among nurses in general hospital settings in the Republic of Korea were performed in this review. However, the meta-analysis was separated according to the score unit (i.e., Likert scale range). All meta-analyses were conducted using Stata version 13.1 (StataCorp, College Station, USA). In the analysis, metan code was used to generated forest plots [20]. The generated forest plot provides the pooled effect size and 95% confidence interval (CI) of individual studies, helping to easily identify intra-study and inter-study variations. The results were presented as standardized mean difference (SMD) and 95% CI. Since substantial heterogeneity was anticipated, a random-effects model, which incorporate an estimate of heterogeneity in the weighting, was introduced [20,21]. Specifically, the DerSimonian and Laird random-effects method was used [20]. The heterogeneity was assessed with the I-square statics [22,23]. As suggested by Higgins et al., in this review, an I-square value greater than 75% was considered high heterogeneity [22]. In addition, the emotional labor-related factors among nurses were investigated. Specifically, correlation results between emotional labor and other variables were extracted from the included studies, and the number of reported variables was quantified. In addition, considering that deep acting has been reported to have a positive relationship with some outcomes of individual mental health and well-being in previous studies [13,14], we tried to investigate whether it is consistently reported in Korean nurses as well."

- **Response to Comments from Reviewer 2**

Comment 1:

Dear Authors , I have read and appreciated the manuscript, "The Experience of Emotional Labor and its related Factors among Nurses in General Hospital setting in Republic of Korea: a Systematic Review and Meta-Analysis". And I consider it satisfactory for publication in "Sustainability".

Response:

Thank you for your time and effort devoted to reviewing this manuscript.

Comment 2:

I suggest only a few minor revisions that I specify below, while emphasizing that I would love to see more substantial representation of the growing literature that highlights the role of Emotional Labor (and in particular Deep Acting) in fostering and sustaining well-being in workers and organizations in addition to performance quality (see for example Humphrey, R. H., Ashforth, B. E., & Diefendorff, J. M. (2015). The bright side of emotional labor. Journal of Organizational Behavior, 36(6), 749-769).

The authors in the discussion note some possible positive effects even if it seems to me there is a tendency to treat Deep Acting as a positive exogenous factor (like Emotional Intelligence) when instead it represents in itself Emotional Labor that therefore takes on a less gloomy and negative connotation than that which pervades the

manuscript.

Several paths, with different levels of complexity, could be taken to mitigate this distortion:

- By giving space in the introduction to the literature on the "bright side" of emotional labor

- Dealing more in discussion with the possible causes of such dysfunctional effects of emotional labor that emerged from the meta-analysis

- Analyzing, if possible, the differential effects of emotional labor in the database of articles that specifically investigated "deep acting" versus "surface acting" (e.g., from line 208)

Response:

Thank you for the comment. This is understood as a comment that the authors should present the reader with a balanced view of emotional labor by emphasizing its positive aspects. We agree with this comment, and we have incorporated all three of the suggestions kindly suggested by the reviewer into our revised manuscript.

1) In the Introduction part, an explanation of the bright side of emotional labor has been added. (Please see page 2, red words)

"Emotional labor can be defined as the process of managing emotions such that they are appropriate for organizational or professional display expectations [9], which can occur in any occupation that provides interpersonal services, including nursing. Four demensions of emotional labor were conceptualized by Morris and Feldman, which include emotional dissonance, variety of emotions to be displayed, attentiveness to required display rules, and frequency of appropriate emotional display [10]. These dimensions are focused on external behavioral displays. On the other hand, Yang et al. suggested that the major dimensions of emotional labor included: emotion termination, expression of naturally felt emotions, surface acting, and deep acting [11]. Emotional labor is known to have a harmful impact on the health of various occupational workers, and in the case of nurses, it is associated with an increased risk of musculoskeletal problems, burnout, and depression [12]. However, some studies have emphasized the bright side of emotional labor, and in particular, it has been suggested that deep acting, but not surface acting, has a positive relationship with outcomes such as job satisfaction, organizational commitment, job performance, and customer satisfaction in general [13,14]. In other words, it is not assumed that emotional labor will have a negative impact on individual well-being as a whole, but it suggests that an approach according to its subtype is needed."

(Please see pages 3-4, red words)

"In addition, the emotional labor-related factors among nurses were investigated. Specifically, correlation results between emotional labor and other variables were extracted from the included studies, and the number of reported variables was quantified. In addition, considering that deep acting has been reported to have a positive relationship with some outcomes of individual mental health and well-being in previous studies [13,14], we tried

to investigate whether it is consistently reported in Korean nurses as well. ”

2) In the Discussion part, the potential causes of the dysfunctional effects of emotional labor derived from meta-analysis were further explored. (Please see page 10, red words)

“As suggested in previous studies [13,14], job stress, burnout, emotional exhaustion, depersonalization, psychosocial stress, presenteeism, anxiety, and frustration were all reported to have significant positive associations with surface acting but not with deep acting, while, self-efficacy, authentic leadership, enjoyment, pride, job satisfaction, and job embeddedness were reported to have significant positive associations with deep acting but not with surface acting.”

(Please see page 12, red words)

“These suggestions are consistent with previous studies that deep acting, but not surface acting, which is one aspect of emotional labor, can have a positive effect on individual mental health and well-being [13,14]. The findings of this review emphasize that, as a whole, deep acting in Korean nurses is positively related to variables such as self-efficacy, authentic leadership, enjoyment, pride, job satisfaction, and job embeddedness. Therefore, as well as lowering the overall emotional labor level in this population, reducing surface acting and facilitating deep acting may be a promising approach for establishing nurse mental health management strategies. Furthermore, levels of surface acting (SMD, 3.29; 95% CI, 3.18 to 3.41) and deep acting (SMD, 3.39; 95% CI, 3.27 to 3.51) of this population found in this meta-analysis should be interpreted in this context.”

3) We added a new analysis in this revised manuscript, organized and explained the relationship between deep acting or surface acting with other variables. And this was added and described in the discussion section. We believe that these descriptions will help readers understand the findings of our review by distinguishing between surface acting and deep acting. (Please see pages 8-9, red words)

“Among the studies reporting the relationship between emotional labor and other variables, 12 studies [66,67,78,84,90,91,100,109,116,145,146,167] reported emotional labor divided into surface acting and deep acting. Surface acting and deep acting showed contradictory associations in some variables. Specifically, job stress, burnout, emotional exhaustion, depersonalization, psychosocial stress, presenteeism, anxiety, and frustration were all reported to have significant positive associations with surface acting, whereas no significant or significant negative associations with deep acting were reported. On the other hand, self-efficacy, authentic leadership, enjoyment, pride, job satisfaction, and job embeddedness were not observed to have a significant association with surface acting, but a significant positive relationship with deep acting was observed (**Table 1**).

Table 1. The relationship between surface acting or deep acting and other variables

Correlations	Surface acting	Deep acting	Total	Study
Social support	NS	NS	NS	[100]
	NS	+	NR	[167]
Coworker support	-	NS	NS	[100]
	NS	NS	NR	[91]
Supervisor support	NS	NS	NS	[100]
	-	NS	NR	[91]
Depressive symptom	NS	NS	NS	[100]
	+	NS	+	[90]
Job stress	+	NS	+	[100]
	+	NS	NR	[167]
Emotional dissonance	+	+	NR	[66]
	+	+	NR	[84]
Burnout	+	-	NR	[66]
Emotional exhaustion	+	NS	NR	[116]
	+	NS	NR	[145]
Personal accomplishment	-	+	NR	[116]
Work burnout	+	+	NR	[67]
Depersonalization	+	NS	NR	[145]
Diminished personal accomplishment	NS	-	NR	[145]
Self-efficacy	NS	+	NR	[109]
Psychosocial stress	+	-	NR	[109]
Emotional leadership	+	+	NR	[145]
Turnover intention	NS	NS	NR	[116]
Authentic leadership	NS	+	NR	[116]
Career	NS	NS	NR	[116]
Presenteeism	+	NS	+	[146]
Work engagement	-	+	NR	[67]
Service delivery	-	+	NR	[67]
Customer orientation	+	+	NR	[67]
Enjoyment	NS	+	NR	[78]
Pride	NS	+	NR	[78]
Anxiety	+	NS	NR	[78]
Anger	NS	-	NR	[78]
Frustration	+	NS	NR	[78]
Job satisfaction	NS	+	NR	[78]
	NS	+	NR	[167]
Job embeddedness	NS	+	NR	[91]

Abbreviations. NR, not reported; NS, no significance.

Note. '+' indicates statistically significant positive correlation; '-' indicates statistically significant negative correlation. "

Comment 3:

Below are some minor revisions that I suggest:

- In line 41, add possible tensions/conflicts with medical staff as part of the nurses' challenges

- Improve in line 45 the redundant phrase "must improve to improve" or in line 289 "related to the relationship"

- Fix on line 55 the typo "these dimensions can are"

- On line 60 start, as suggested above, to give space also to the literature on the positive effects of emotional labor

- On line 160 I wondered if the sample size indicated concerned only the nursing staff or the hospital staff in general, object of the studies analyzed

- Also on line 160 I wondered how it was possible that 38 of the studies analyzed were of such low quality that they did not even indicate the gender of the personnel being investigated

- Starting on line 286, if it is possible to help the reader by better describing the directions of the mediations discussed

- In the discussion from line 352 it would be useful to give the reader some more reference on the effects of Korean culture on attitudes toward the expression of emotions (the topic of cross-cultural differences on these communicative dimensions is rich in the literature)

- Enrich the conclusions so that they are not essentially a sterile copy of the abstract

Response:

Thank you for your comments. All the comments kindly provided by the reviewer were reflected in this revised manuscript.

1) In line 41, add possible tensions/conflicts with medical staff as part of the nurses' challenges

(Please see page 1, red words)

"Nurses are important healthcare workers (HCWs) and are potentially exposed to occupational stressors, including poor coworker attitudes, working in busy departments, inadequate pay, overwork, and possible tensions/conflicts with other medical staff [1]."

2) Improve in line 45 the redundant phrase "must improve to improve" or in line 289 “related to the relationship”

(Please see pages 1-2, red words)

“Not only the improvement of nurses’ mental health is important to improve their overall health and quality of life [3], but also their good mental health is essential for patient safety [5,6] and efficient use of medical resources, such as organizational commitment and productivity [6].”

(Please see page 11, red words)

“The mode of emotional expression also seems to be an important factor related to the effect of emotional labor on nursing care.”

3_ Fix on line 55 the typo "these dimensions can are"

(Please see page 2, red words)

“These dimensions are focused on external behavioral displays.”

4) On line 60 start, as suggested above, to give space also to the literature on the positive effects of emotional labor

(Please see page 2, red words)

“However, some studies have emphasized the bright side of emotional labor, and in particular, it has been suggested that deep acting, but not surface acting, has a positive relationship with outcomes such as job satisfaction, organizational commitment, job performance, and customer satisfaction in general [13,14]. In other words, it is not assumed that emotional labor will have a negative impact on individual well-being as a whole, but it suggests that an approach according to its subtype is needed.”

5) On line 160 I wondered if the sample size indicated concerned only the nursing staff or the hospital staff in general, object of the studies analyzed.

(Please see page 5, red words)

“In total, 131 studies had cross-sectional designs [64-194]. These studies were all published between 2009 and 2020 and were conducted on Korean nurses (only the nursing staffs) in Korea.”

6) Also on line 160 I wondered how it was possible that 38 of the studies analyzed were of such low quality that

they did not even indicate the gender of the personnel being investigated

(Please see page 5, red words)

“The analyzed sample sizes of the included studies varied from 60 to 813. In 38 studies [66,67,69,70,72,74,79,87,90,98,101,109,110,126-128,131,135,138,144-146,150,151,158,160,163,164,166,168,170-173,184,188,191,192], the sex of the participants was not reported. It is presumed that sex information is missing under the assumption that all participants are female.”

7) Starting on line 286, if it is possible to help the reader by better describing the directions of the mediations discussed

(Please see page 11, red words)

“Hong et al. used structural equation modeling to analyze their hypothetical model’s goodness of fit and found that emotional intelligence mediated the relationship between emotional labor and burnout [68]. Specifically, burnout was significantly affected by emotional labor, job stress and emotional intelligence (with total explanatory power of 37.2%), and emotional intelligence was significantly affected by emotional labor and job stress (with total explanatory power of 13.1%) [68].”

8) In the discussion from line 352 it would be useful to give the reader some more reference on the effects of Korean culture on attitudes toward the expression of emotions (the topic of cross-cultural differences on these communicative dimensions is rich in the literature)

(Please see page 12, red words)

“Second, the results of this review have limitations in terms of their generalizability. Since this review focuses on Korean nurses, caution must be taken when translating these results into emotional labor faced by nurses in other countries. As a country still influenced by Confucian ideology, one of the typical aspects of Korean nurse is to hide one's thoughts or opinions, or to speak and act differently from their true intentions, as patience is considered a virtue [202,203]. However, the effect of this culture on the mental health of Korean nurses has not yet been systematically investigated. In addition, since this study focused on nurses working in general hospital settings, it cannot be translated to nurses working in other medical institutions.”

9) Enrich the conclusions so that they are not essentially a sterile copy of the abstract

(Please see page 13, red words)

“According to the findings of this review, nurses in a general hospital setting in Korea have experienced mild-

to-moderate levels of emotional labor. The level of emotional labor had a significant negative correlation with job satisfaction, social support, organizational engagement, coworker support, resilience, and nurses' work environment, and a significant positive correlation with emotional labor and burnout, turnover intention, and job stress. Furthermore, it was found that some aspects of emotional labor, such as surface acting and deep acting, had different effects on this group. Specifically, job stress, burnout, emotional exhaustion, depersonalization, psychosocial stress, presenteeism, anxiety, and frustration were all reported to have significant positive associations with surface acting but not with deep acting, while, self-efficacy, authentic leadership, enjoyment, pride, job satisfaction, and job embeddedness were reported to have significant positive associations with deep acting but not with surface acting. Finally, there is some evidence that the emotional labor of nurses and their detrimental effects can be buffered at both the individual and hospital levels, and future research should focus on developing targeted interventions and evaluating their effectiveness."

Comment 4:

Regarding the figures I would suggest:

- In figure 2 put the note about the weights in the description of the figure and not within the table itself (so as to be sure that the reader grasps it)

- I was wondering why in figure two the adjective "severe" has been used to qualify the Likert scales rather than "intense"

- In figure 3 I suggest to order the colors within the bars according to this logic: green (positive), yellow (ns), red (negative) rather than green, red, yellow.

Response:

Thank you for your comments. All the comments kindly provided by the reviewer were reflected in this revised manuscript.

1) In figure 2 put the note about the weights in the description of the figure and not within the table itself (so as to be sure that the reader grasps it)

(Please see page 7, red words)

"Note. The DerSimonian and Laird random-effects method, which incorporate an estimate of heterogeneity in the weighting, was used."

2) I was wondering why in figure two the adjective "severe" has been used to qualify the Likert scales rather than "intense"

(Please see Figure 2 and other all figures in supplementary 4)

The adjective severe has been changed to intense.

3) In figure 3 I suggest to order the colors within the bars according to this logic: green (positive), yellow (ns), red (negative) rather than green, red, yellow.

(Please see Figure 3)

This figure has been modified at the request of the reviewer.