# Stress and Coping among Nurses Working at Critical Care units of Selected Hospitals, Nepalgunj Nepal

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## Abstract

Stress in the nursing profession has been a persistent global problem for many years now. Study is done to assess the stress and coping among the nurses working at critical units using descriptive cross-sectional study design among 81 critical care nurses of Nepalgunj Medical College Teaching Hospital, Nepalgunj and Nepalgunj Medical College Teaching Hospital, Kohalpur, Nepal. Non probability convenient sampling with all complete population were included Data were analyzed by using descriptive and inferential statistics. Out of 81Majority 56 (69.1%) of the nurses had mild level of stress scores whereas 25(30.9 %) were under moderate stress scores and no body was found under sever level of stress scores. The mean stress score was 43.26 ± 12.19 SD. Majority 53 (65.4%) of the nurses had average coping levels of coping scores whereas 28 (34.6%) had good level of coping scores and nobody had poor level of coping strategies. The mean coping score was 48.48, ± 9.19 SD. There was a positive correlation between level of stress (mean ± SD = 43.26 ±12.19) and the level of coping strategies (mean ± SD = 48.48 ±9.19), with Karl Pearson's Correlation Coefficient; r=0.18. Study presents mild level of stress and average coping among these nurses.

*Keywords:* Coping strategies, Critical Care Units, Level of stress, Nurses

## Introduction

Stress is a part of everyday life for health professionals such as nurses and physicians. As a positive influence, stress is a motivating force toward progress, and it can create new awareness and exciting new perspectives. Many types of diseases have been linked with stress, including high blood pressure, heart attack, heart disease, peptic ulcer, headache, pain in the neck, asthma, cancer, and depression (Peter et al., 2004).

A descriptive survey approach was used to assess the level of stress among nurses working in intensive care units in selected hospitals of Navi Mumbai (2014). A simple random sampling technique

was used for the selection of 50 ICU staff nurses. The overall findings revealed that the majority (42%) of the sample had severe stress (Pawar, 2014).

A study conducted at University Teaching Hospitals, Rwanda, used a cross-sectional descriptive design among 92 nurses working in ICUs using a census sampling method. This study found that 26.1% of participants exhibited a high level of stress, while 54.3% and 19.6% had moderate and low levels of workplace stress, respectively (Munyanziza, n.d.).

A descriptive comparative design was conducted at M.O.S.C. Medical College Hospital Kolenchery, a tertiary care hospital (2016), among 240 nurses using stratified random sampling from three strata: general ward, private ward, and ICU/emergency units. Among these, general wards, private wards, and ICUs, severe stress was experienced by ICU staff (42%), while the majority of staff nurses in general wards and private wards were experiencing a moderate level of stress. Among the coping strategies, most staff nurses used emotion-based coping strategies to overcome stressful situations (Joseph et al., 2016).

Another study was conducted in 2013 among 72 nurses in an ICU using a census sampling method at Shahid Mohammadi Hospital in Iran. High and moderate levels of occupational stress were experienced by 83.9% and 10.7% of ICU nurses, respectively. The prevalence of mental disorders, somatic symptoms, anxiety, social dysfunction, and depression were 58.9%, 60.7%, 62.5%, 71.4%, and 10.7%, respectively (Tajvar et al., 2015).

Evidence suggests that 27% of healthcare staff suffered serious psychological disturbances compared with the general working population. Thus, the problem of retaining qualified and experienced staff has highlighted the need to look at various aspects of work and the work environment, which affects the level of job satisfaction and, in turn, influences the quality of service and helps the healthcare system cater to the needs of the community effectively (Journal of Nursing and Health Science, 2013).

The International Labour Organization (ILO, 2004) reported that widespread nursing shortages and nurses' high turnover have become a global issue, increasing daily in both developed and developing countries. Hence, if job stress is persistently ignored, the price to be paid—both in terms of individual suffering and patients' lives—will be higher than anyone could have thought possible (Portela et al., 2004).

A study was conducted with 104 nurses who worked in intensive and emergency care at a public hospital in the state of São Paulo, Brazil. Data collection was performed in person and online using a questionnaire assessing sociodemographic and occupational characteristics, the Nursing Stress Inventory, and the Occupational Coping Scale. The participants had a high level of stress (median = 132), especially in the 'interpersonal relations' domain (median = 63), and made little use of occupational coping strategies (median = 87). Income (*p* = 0.027), work shift (*p* = 0.028), being on leave from work (*p* = 0.020), number of hospitals with employment ties (*p* = 0.001), and relationship with management were independently associated with the levels of stress among the nurses. No significant association was found between stress among the nurses and the use of occupational coping strategies (Meneguin et al., 2024).

Coping mechanisms are necessary to minimize stress among nurses. Stress may lead to various complications in physical and mental health. This, in turn, may affect personal and professional life. Therefore, the investigator felt the need for assessing stress and coping among nurses working in critical care units (Milutinović et al., 2012).

## Objectives of the Study

The study's primary objectives were as follows:

1. The study aimed to evaluate the degree of stress experienced by nurses in intensive care settings, categorizing stress levels as mild, moderate, or severe.
2. The study sought to analyze how nurses manage stress, identifying whether their coping mechanisms were poor, average, or good.
3. The study investigated whether there was a significant relationship between the stress experienced by nurses and their coping mechanisms, using statistical analysis (Karl Pearson's Correlation Coefficient).

## Materials and Methods

Cross-sectional study design was used. The settings of the study were at Nepalgunj Medical College Teaching Hospital, Nepalgunj and Nepalgunj Medical College Teaching Hospital, Kohalpur (Banke). The population of the study was all the nurses working in ICU, NICU, PICU, SICU and MICU of selected hospitals. Who were at least six months experiences in the related units self-administer tool were used for the data collection.

### Research Instruments

The tool consists of a structured questionnaire on

**Section I** items related to socio-demographic characteristics of the nurses
**Section II** items related to stress with 30 statements with corresponding levels experienced as 0 for never, score 1 for rarely score 2 for often, score 3 for very often and score 4 for always. The total score of the stress was divided in three levels mild stress 0-49; moderate stress as 50-89 and severe stress as 90-120.
**Section III** items on structured assessment coping scale with 30 statements with the option as score of 0 for never, score 1 for rarely, score 2 for often, score 3 for very often and score 4 for always. The level of coping was divided into three levels; poor as 0-19, average as 20-53 and good as 54-120.

## Validity and pre-testing of the Instrument

The content validity of the instrument was established through seeking the opinion from research advisor and experts working in critical care units. Pre-testing of the tool was done among 10% of the population at intensive care unit of National Medical College Teaching Hospital, Birgunj. Questions were revised for the fnalization.

## Data Collection Procedure

Data was collected after getting ethical clearance from Institutional Review Board and approval letter from National medical college nursing campus, Birgunj. Permission was taken from

Nepalgunj Medical College Teaching Hospital, Nepalgunj for the data collection. The data were collected from 2014/1/26 to 2014/2/21 after getting written informed consent from the respondent. The researcher herself distributed the self -administered questionnaire to the participants.

## Result and Discussion

**Table 1**

*Sociodemographic Characteristics of the Respondents*

n=81

| Characteristics | Frequency | Percent |
|---|---|---|
| **Age in years** | | |
| 20-25 | 37 | 45.8 |
| 26-30 | 21 | 25.9 |
| 31-35 | 23 | 28.3 |
| **Professional Qualification** | | |
| Bachelor in nursing | 5 | 6.1 |
| B.SC nursing | 2 | 2.5 |
| PCL nursing | 74 | 91.4 |
| **Marital status** | | |
| Married | 25 | 30.9 |
| Unmarried | 56 | 69.1 |
| **Area of work** | | |
| ICU | 21 | 25.9 |
| PICU | 9 | 11.1 |
| MICU | 14 | 17.3 |
| SICU | 12 | 14.8 |
| NICU | 25 | 30.9 |
| **Year of experiences(In yrs)** | | |
| 6months-1yr | 34 | 42.0 |
| 2-3yr | 21 | 25.9 |
| 4-5yr | 19 | 23.5 |
| >5yr | 7 | 8.6 |
| **In-service education/training** | | |
| Yes | 7 | 8.6 |
| No | 74 | 91.4 |

Mean ± SD=26.90±4.48

**Table 2**

*Level of Stress of the Respondents*

n=81

| Levels of Stress | Frequencies | Percentage |
|---|---|---|

| | | |
|---|---|---|
| Mild (0-49) | 56 | 69.1 |
| Moderate (50-89) | 25 | 30.9 |
| Severe (90-120) | 0 | 0 |

**Table 3**

*Level of Coping of the Respondents*

| | | n=81 |
|---|---|---|
| **Level of coping** | **frequency** | **Percentage** |
| Poor (0-19) | 0 | 0 |
| Average (20-53) | 53 | 65.4 |
| Good (54-120) | 28 | 34.6 |

**Table 4**

*Correlations between Stress Score and Coping Score of the Respondents*

| | | | n=81 |
|---|---|---|---|
| | **Mean Score** **Mean ± SD** | **Karl Pearson's** **correlation  coefficient** | **p-value** |
| **Stress Score** | 43.26 ± 12.19 | | |
| | | r = .186 | 0.097 |
| **Coping Score** | 48.48 ± 9.19 | | |

**Table 5**

*Association of Level of Stress with Demographic Characteristics of the Respondents*

| | | n=81 | |
|---|---|---|---|
| | **Level of Stress** | | |
| **Characteristics** | **Mild** | **Moderate** | **p-value** |
| **Age in years** | **n(%)** | **n(%)** | |
| 20-25 | 29(78.4) | 8(21.6) | 0.19 |
| 26-30 | 14(66.7) | 7(33.3) | |
| 31-30 | 13(56.5) | 10(43.5) | |
| **Educational Qualification** | | | |
| Bachelor Level | 4(57.1) | 3(42.9) | 0.67 |

| | | | |
|---|---|---|---|
| PCL nursing | 52(70.3) | 22(29.7) | |
| **Marital Status** | | | |
| Married | 14(56) | 11(44) | 0.08 |
| Unmarried | 42(75) | 14(25) | |
| **Area of Work** | | | |
| ICU | 18(85.7) | 3(14.3) | 0.18 |
| PICU | 7(77.8) | 2(22.2) | |
| MICU | 8(57.1) | 6(42.9) | |
| SICU | 9(75) | 3(25) | |
| NICU | 14(56) | 11(44) | |
| **Year of Experiences** | | | |
| <1yr | 26(76.5%) | 8(23.5) | 0.43 |
| 1-3year | 26(65.0%) | 14(35) | |
| >3yr | 4(57.1%) | 3(42.9) | |
| **In-service education/training** | | | |
| Yes | 4(57.1) | 3(42.9) | 0.37[a] |
| No | 52(70.3) | 22(29.7) | |

*$p$ value $< 0.05$ statistically significant value, a= Fisher exact test

**Table 6**

*Association of Level of Physical Stress with Demographic Characteristics of the Respondents*

n=81

| Characteristics | Level of Physical Stress | | p-value |
| | Mild | Moderate | |
|---|---|---|---|
| **Age in years** | n(%) | n(%) | |
| 20-25 | 25(67.6) | 12(32.4) | 0.12 |
| 26-30 | 16(76.2) | 5(23.8) | |
| 31-35 | 11(47.8) | 12(52.2) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 2(28.6) | 5(71.4) | 0.1 |
| PCL nursing | 50(67.6) | 24(32.4) | |
| **Marital Status** | | | |
| Married | 11(44) | 14(56) | 0.01* |
| Unmarried | 41(73.2) | 15(26.8) | |
| **Area of work** | | | |
| ICU | 15(71.4) | 6(28.6) | 0.04* |
| PICU | 6(66.7) | 3(33.3) | |
| MICU | 4(28.6) | 10(71.4) | |
| SICU | 8(66.7) | 4(33.3) | |
| NICU | 19(76.0) | 6(24) | |
| **Year of Experiences** | | | |
| <1years | 22(55.0) | 8(45.0) | 0.14 |
| 1-3 | 9(47.4) | 10(52.6) | |
| >3years | 4(57.1) | 3(42.9) | |
| **In-service Education/Training** | | | |
| Yes | 6(85.7) | 1(14.3) | 0.40[b] |

| | | |
|---|---|---|
| No | 46(62.2) | 28(37.8) |

*\*p* value < 0.05 statistically significant value, b = Yates's correction

**Table 7**

*Association of the Level of Psychological Stress with Demographic Characteristics of the Respondents*

**n=81**

| Characteristics | Level of Psychological Stress | | p-value |
|---|---|---|---|
| | **Mild** | **Moderate** | |
| **Age in years** | n(%) | n(%) | |
| 20-25 | 31(83.8) | 6(16.2) | |
| 26-30 | 15(71.4) | 6(28.6) | |
| 31-35 | 17(73.9) | 6(26.1) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 6(85.7) | 1(20) | 0.59 |
| PCL nursing | 57(77) | 17(23) | |
| **Marital Status** | | | |
| Married | 17(68.0) | 8(32.0) | 0.15 |
| Unmarried | 46(82.1) | 10(17.9) | |
| **Area of Work** | | | |
| ICU | 20(95.2) | 1(4.8) | 0.05 |
| PICU | 5(55.6) | 4(44.4) | |
| MICU | 10(71.4) | 4(28.6) | |
| SICU | 11(91.7) | 1(8.3) | |
| NICU | 17(68.0) | 8(32.0) | |
| **Year of Experiences** | | | |
| <1years | 29(85.3) | 5(14.7) | 0.25 |
| 1-3years | 28(70) | 12(30) | |
| >3yr | 6(85.7) | 1(14.3) | |
| **In-service education/Training** | | | |
| Yes | 4(57.1) | 3(42.9) | 0.18[a] |
| No | 59(79.7) | 15(20.3) | |

*\*p*-value < 0.05 statistically significant value, a= Fisher exact test

**Table 8**

*Association of Level of Social Stress with Demographic Characteristics of the Respondents*

**n=81**

| Characteristics | Level of Social Stress | | p-value |
|---|---|---|---|
| | **Mild** | **Moderate** | |
| **Age in years** | n(%) | n(%) | |
| 20-25 | 13(35.1) | 24(64.9) | 0.53 |
| 26-30 | 5(23.8) | 16(76.2) | |

| | | | |
|---|---|---|---|
| >31 | 9(39.1) | 14(60.9) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 3(42.9) | 4(57.1) | 0.68 |
| PCL nursing | 24(32.4) | 50(67.6) | |
| **Marital Status** | | | |
| Married | 7(28.0) | 18(72.0) | 0.49 |
| Unmarried | 20(35.7) | 36(63.3) | |
| **Area of Work** | | | |
| ICU | 11(52.4) | 10(47.6) | 0.02* |
| PICU | 1(11.1) | 8(88.9) | |
| MICU | 3(21.4) | 11(78.6) | |
| SICU | 7(58.3) | 5(41.7) | |
| NICU | 5(20.0) | 20(80) | |
| **Year of Experiences** | | | |
| <1year | 12(35.3) | 22(64.7) | 0.76 |
| 1-3year | 12(30) | 28(70) | |
| >3year | 3(42.9) | 4(57.1) | |
| **In-service Education/Training** | | | |
| Yes | 1(14.3) | 6(85.7) | 0.48[b] |
| No | 26(35.1) | 48(64.9) | |

*$p$-value < 0.05 statistically significant value, b= Yates's correction

**Table 9**

*Association of Level of Family Stress with Demographic Characteristics of the Respondents*

n=81

| | Level of Family Stress | | |
|---|---|---|---|
| **Characteristics** | **Mild** | **Moderate** | **p-value** |
| | n(%) | n(%) | |
| **Age in years** | | | |
| 20-25 | 24(64.9) | 13(35.1) | 0.09 |
| 26-30 | 8(38.1) | 13(61.9) | |
| 31-35 | 10(43.5) | 13(56.5) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 5(71.4) | 2(28.6) | 0.49 |
| PCL nursing | 37(50.5) | 37(50) | |
| **Marital Status** | | | |
| Married | 10(40.0) | 15(60.0) | 0.22 |
| Unmarried | 32(57.1) | 24(42.9) | |
| **Area of Work** | | | |
| ICU | 13(61.9) | 8(38.1) | 0.37 |
| PICU | 3(33.3) | 6(66.7) | |
| MICU | 5(35.7) | 9(64.3) | |
| SICU | 6(50) | 6(50) | |
| NICU | 15(60.0) | 10(40.0) | |
| **Year of Experiences** | | | |
| <1years | 21(61.8%) | 13(38.2%) | 0.31 |
| 1-3years | 18(45%) | 22(55%) | |

| | Mild | Moderate | |
|---|---|---|---|
| >3years | 3(42.9%) | 4(57.1%) | |
| **In-service Education/Training** | | | |
| Yes | 3(42.9%) | 4(57.1%) | 0.70ᵃ |
| No | 39(52.7%) | 35(47.3%) | |

*p-value < 0.05 statistically significant value, a=Fisher exact test

**Table 10**

*Association of Level of Work Stress with Demographic Characteristics of the Respondents*

n=81

| | Level of Work Stress | | |
|---|---|---|---|
| **Characteristics** | **Mild** | **Moderate** | **p-value** |
| **Age in years** | n(%) | n(%) | |
| 20-25 | 23(62.2) | 14(37.8) | 0.71 |
| 26-30 | 13(61.9) | 8(38.1) | |
| 31-35 | 12(52.2) | 11(47.8) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 4(57.1) | 3(42.9) | 1.0 |
| PCL nursing | 44(59.5) | 30(40.5) | |
| **Marital Status** | | | |
| Married | 14(56.0) | 11(44.0) | 0.69 |
| Unmarried | 34(60.7) | 22(39.3) | |
| **Area of work** | | | |
| ICU | 15(71.4) | 6(28.6) | 0.63 |
| PICU | 6(66.7) | 3(33.3) | |
| MICU | 7(50) | 7(50) | |
| SICU | 7(58.3) | 5(41.7) | |
| NICU | 13(52.0) | 12(48.0) | |
| **Year of Experiences** | | | |
| <1years | 22(64.7) | 12(35.3) | 0.69 |
| 1-3years | 22(55) | 18(45) | |
| >3years | 4(57.1) | 3(42.9) | |
| **In-service Education/Training** | | | |
| Yes | 4(57.1) | 3(42.9) | 1ᵃ |
| No | 44(59.5) | 30(40.5) | |

*p-value < 0.05 statistically significant value, a=Fisher exact test

**Table 11**

*Association of Level of Environmental Stress with Demographic Characteristics of the Respondents*

n=81

| | Level of Environmental | | |
|---|---|---|---|
| **Characteristics** | **Mild** | **Moderate** | **p-value** |
| **Age in years** | n(%) | n(%) | |
| 20-25 | 15(40.5) | 22(59.5) | 0.48 |
| 26-30 | 10(47.6) | 11(52.4) | |
| 31-35 | 13(56.5) | 10(43.5) | |

| | | | |
|---|---|---|---|
| **Professional Qualification** | | | |
| Bachelor nursing | 2(28.6) | 5(71.4) | 0.5 |
| PCL nursing | 36(48.6) | 38(51.4) | |
| **Marital Status** | | | |
| Married | 13(52.0) | 12(48.0) | 0.54 |
| Unmarried | 25(44.6) | 31(55.4) | |
| **Area of Work** | | | |
| ICU | 14(66.7) | 7(33.3) | 0.01* |
| PICU | 6(66.7) | 3(33.3) | |
| MICU | 7(50) | 7(50) | |
| SICU | 6(50) | 6(50) | |
| NICU | 5(20.0) | 20(80.0) | |
| **Year of Experiences** | | | |
| <1years | 17(50.0%) | 17(50.0) | 0.88 |
| 1-3years | 18(45) | 22(55) | |
| >3years | 3(42.9%) | 4(57.1) | |
| **In-service Education/Training** | | | |
| Yes | 2(28.6) | 5(71.4) | 0.53[b] |
| No | 36(48.6) | 38(51.4) | |

*$p$-value $< 0.05$ statistically significant value, b=Yates's correction

### Table 12

*Association of level of coping with Selected Demographic Characteristics of the Respondents*

n=81

| | Level of Coping | | |
|---|---|---|---|
| **Characteristics** | **Average** | **Good** | **p-value** |
| **Age in years** | n(%) | n(%) | |
| 20-25 | 23(62.2) | 14(37.8) | 0.60 |
| 26-30 | 13(61.9) | 8(38.1) | |
| 31-35 | 17(73.9) | 6(26.1) | |
| **Professional Qualification** | | | |
| Bachelor nursing | 5(71.4) | 2(28.6) | 1.0 |
| PCL nursing | 48(64.9) | 26(35.1) | |
| **Marital Status** | | | |
| Married | 16(64) | 9(36) | 0.85 |
| Unmarried | 37(66.1) | 19(33.9) | |
| **Area of work** | | | |
| ICU | 14(66.7) | 7(33.3) | 0.52 |
| PICU | 8(88.9) | 1(11.1) | |
| MICU | 9(64.3) | 5(35.7) | |
| SICU | 8(66.7) | 4(33.3) | |
| NICU | 14(56) | 11(44) | |
| **In-service education/training** | | | |
| Yes | 5(71.4) | 2(28.6) | 1[b] |
| No | 48(64.9) | 26(35.1) | |

*p*-value < 0.05 statistically significant value, b= Yates's corrections

## Discussion

In relation to the levels of stress, 69% of the respondents had mild level of stress score, 30.9% had moderate level of stress whereas nobody had severe stress. The mean level of stress score was 43.26±12.9 standard deviation. The findings of the studies are in contrast with the findings done Varghese, (2013) which reported that majorities (74.66%) have moderate level of stress, 16.16% have mild level of stress, and 8.66% have severe level of stress and mean stress score have 68.88 ± 19.54 SD.

In relation to the level of coping, 65.4% of the nurses had average level of coping score, 34.6% were good level whereas nobody had poor level of coping score. The mean coping score was 48.48 ± 9.19 SD. The findings of the study are supported by the findings done by Varghese which reported majorities (80%) have average level of coping, 12.66% have good level of coping and 7.33% have poor level of coping. The mean coping strategies score was 48.48 ± 9.19 SD.

Regarding relationship between stress score and coping score, similarly there was positive correlation between stress score and coping score with the Karl Pearson's correlation coefficient, (r=0.18) and p value 0.09. The mean score of stress is 43.26 ± 12.19 SD and coping score (Mean ± SD 48.48 ± 9.19). The findings of the studies are supported by findings done by Kamat, (2011) which reported that there is positive correlation between level of stress (mean ± SD =68.66 ± 19.54) and coping strategies (Mean ± SD = 36.46 ± 17.62) with the Karl Pearson's correlation coefficient, (r=0.17) which states that, there is average level of coping mechanism among the nurses of critical care units even though they have mild level of stress.

Regarding the association of level of stress with socio- demographic characteristics of the respondents, found that there was no association of level of stress with demographic characteristics of the respondents, age (p=0.19), professional qualification (p=0.42), marital status (p=0.087), area of work (p=0.18), year of experience (p=0.43) and in-service education (p=0.37). The findings of the studies are supported by the study done by Varghese, (2013) which reported that there was no association of level of stress with age $\chi^2$ value (12.51) at 6df, marital status $\chi^2$ value (9.63) at 6df, professional qualification $\chi^2$ value (6.71) at 4df, area of work $\chi^2$ value (5.55) at 14df, work experience $\chi^2$ value (2.43) at 6df and in-service education $\chi^2$ value (4.55) at 2df

In relation the association of level of physical stress with demographics characteristics of the respondents, there was statistically significant association of level of physical stress with area of work (P=0.04) and marital status (p=0.01). There were no association with age (p=0.12), professional qualification (p=0.07), year of experiences (p=0.14) and in-service education (p=0.40). Similarly, in relation to the association of the level of environmental stress with demographic characteristics of the nurses, there was significant association of the level of environmental stress with area of work NICU (p=0.01), and no association with age (p=0.71), professional qualification (p=0.88), marital status (p=0.69), years of experience (p=0.69) and in-service education (p=1).

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Regarding the association of level of coping with demographic characteristics of the nurses, there was no association of level of coping with demographic characteristics of the nurses, age (p=0.60), marital status (p=0.08), area of work p= 0.52), area of work (p=0.52) and in-service education (p=1).

## Conclusion

It can be concluded that there is mild level of stress and average level of coping among the nurses and positive correlation between stress and coping which states that when the stress increase there is also increased coping that makes adjustment easier.

## Acknowledgments

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