**Data Analysis Report: Mental Health in HCWs During a Dengue Outbreak**

**1. Objective:**

The analysis aims to assess the mental health and burnout levels among healthcare workers (HCWs) during a dengue outbreak, focusing on the relationship between demographic characteristics, work conditions, and burnout levels (High Burnout vs. No Burnout).

**2. Dataset Overview:**

* **Sample Size**: 102 observations
* **Key Variables**:
  + **Demographics**: Age, gender, work hours, qualification, department, marital status, location, work location, dengue cases handled.
  + **Burnout Constructs**: Emotional Exhaustion, Personal Accomplishment, Depersonalization.
  + **Mental Health Metrics**: Stress, Anxiety, Depression.
  + **Burnout Classification**: High Burnout was determined based on specific thresholds for Emotional Exhaustion, Depersonalization, and Personal Accomplishment.

**3. Key Findings:**

**3.1 Burnout Metrics:**

* **Emotional Exhaustion**: Mean = 25.2, SD = 6.4 (95% CI: 23.9–26.5).
* **Personal Accomplishment**: Mean = 34.6, SD = 7.1 (95% CI: 33.2–36.0).
* **Depersonalization**: Mean = 12.8, SD = 4.8 (95% CI: 11.7–13.9).

**3.2 Burnout Classification:**

* **High Burnout**: 20% of HCWs met the criteria (High Emotional Exhaustion, High Depersonalization, Low Personal Accomplishment).
* **No Burnout**: 80% of HCWs.

**3.3 Demographic Analysis by High Burnout:**

* **Age**:
  + HCWs aged 20-25 had the highest proportion of High Burnout (40%).
  + Older age groups showed progressively lower burnout rates.
  + P-value = 0.5.
* **Gender**:
  + Females: 38% in the High Burnout group.
  + Males: 63% in the High Burnout group.
  + P-value = 0.054 (borderline significant).
* **Work Hours**:
  + Longer work hours (>60 hours/week) were significantly associated with High Burnout.
  + P-value = 0.002.
* **Qualification**:
  + House Officers reported the highest High Burnout rates (75%).
  + Specialists showed no High Burnout cases.
  + P-value = 0.03.

**3.4 Mental Health Metrics by High Burnout:**

* **Stress**: Slightly higher in the High Burnout group (Mean = 8.0 vs. 7.3; P-value = 0.8).
* **Anxiety**: Lower in the High Burnout group (Mean = 5.9 vs. 6.6; P-value = 0.5).
* **Depression**: Lower in the High Burnout group (Mean = 9 vs. 12; P-value = 0.4).

**3.5 Work Characteristics:**

* **Department**:
  + Pediatrics and Medicine departments showed the highest High Burnout rates.
  + P-value = 0.01.
* **Work Location**:
  + HCWs in the dengue ward showed higher burnout rates, though not statistically significant (P-value > 0.9).

**4. Conclusions:**

1. **High Burnout** is prevalent among younger HCWs and those with longer work hours and lower qualifications.
2. Emotional Exhaustion and Depersonalization are the strongest contributors to burnout.

**Results**

**Table I: Socio-demographic of the participants**

|  |  |
| --- | --- |
| **Characteristic** | **N = 102***1* |
| age |  |
| 20-25 | 41 (40%) |
| 26-30 | 38 (37%) |
| 31-35 | 7 (6.9%) |
| 36-40 | 8 (7.8%) |
| 41-45 | 4 (3.9%) |
| above 50 | 4 (3.9%) |
| gender |  |
| female | 71 (70%) |
| male | 31 (30%) |
| work\_hours |  |
| >80 | 9 (8.8%) |
| 1-10 | 13 (13%) |
| 11-20 | 1 (1.0%) |
| 21-30 | 2 (2.0%) |
| 31-40 | 16 (16%) |
| 41-50 | 27 (26%) |
| 51-60 | 13 (13%) |
| 61-70 | 8 (7.8%) |
| 71-80 | 13 (13%) |
| qualification |  |
| house officer | 28 (27%) |
| medical officer | 7 (6.9%) |
| medical specialist | 11 (11%) |
| nursing staff | 36 (35%) |
| post graduate resident | 18 (18%) |
| working in administration(DMS, IT person) | 2 (2.0%) |
| dept |  |
| department of infectious diseases DID | 33 (32%) |
| emergency medicine | 19 (19%) |
| medicine | 39 (38%) |
| pathology | 1 (1.0%) |
| peadiatrics | 9 (8.8%) |
| surgery | 1 (1.0%) |
| marital\_status |  |
| married | 37 (36%) |
| single | 65 (64%) |
| Emotional\_Exhaustion | 25 (10) |
| Personal\_Accomplishment | 35 (12) |
| Depersonalization | 14 (9) |
| *1* n (%); Mean (SD) |  |

**Average scores of subscales of the Maslach Burnout Inventory Human Service Survey (MBI-HSS) (N=102)**

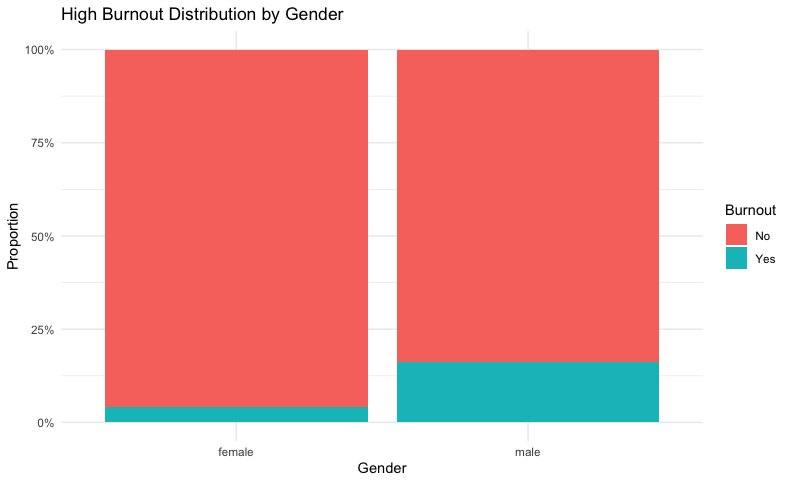
|  |  |  |
| --- | --- | --- |
|  | | |
| **Burnout subscales** | **Mean + SD** | **95% confidence interval** |
| Emotional Exhaustion | 24.83 +10.24 | 22.85-26.82 |
| Personal Accomplishment | 34.84+11.67 | 32.58-3711 |
| Depersonalization | 14.04+8.98 | 12.30-15.78 |

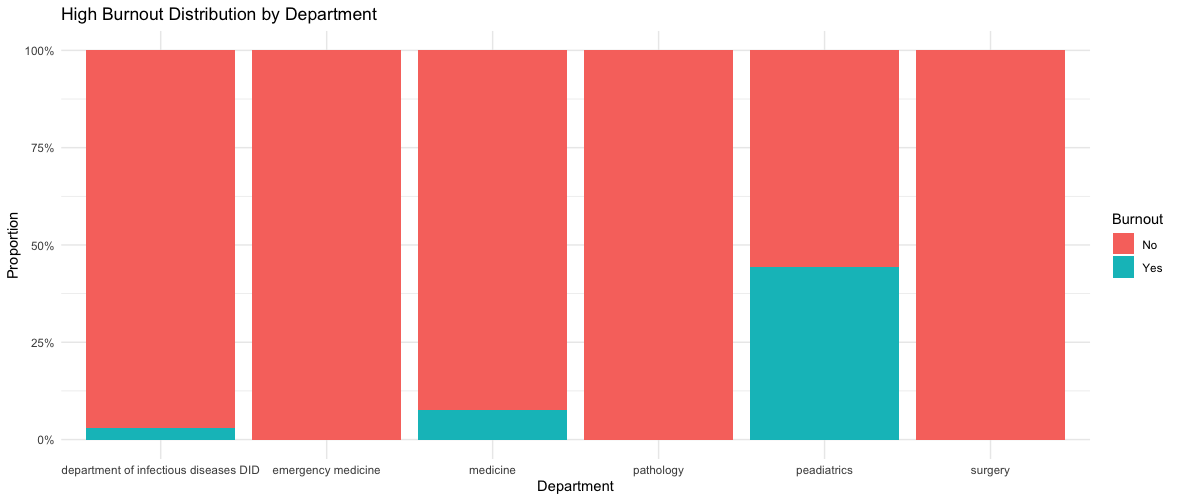
**Prevalence of Burnout Syndrome**

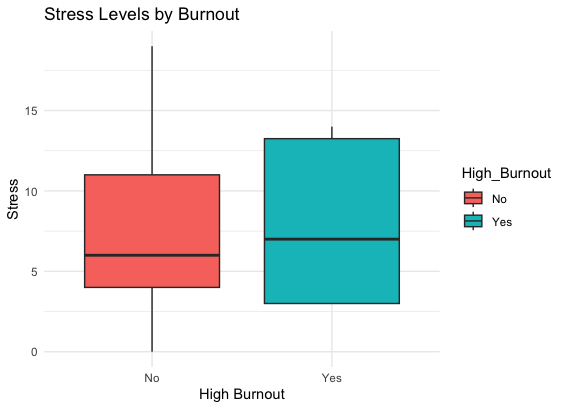
|  |  |  |
| --- | --- | --- |
| **Maslach Burnout Inventory – Human Services Survey (MBI-HSS) subscale** | | **N = 102*1*** |
| Overall prevalance of High Burout | | 8(7.84%) |
| Emotional Exhaustion | Low | 27 (26%) |
|  | Moderate | 29 (28%) |
|  | High | 46 (45%) |
| Personal Accomplishment | Low | 26 (25%) |
|  | Moderate | 24 (24%) |
|  | High | 52 (51%) |
| Depersonalization | Low | 23 (23%) |
|  | Moderate | 29 (28%) |
|  | High | 50 (49%) |
|  | *1* n (%) |  |

Degree of burnout by socio-demographic and work characteristics

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Characteristic** | **Overall** | **No** | **Yes** | **p-value***2* |
| N = 102*1* | N = 94*1* | N = 8*1* |
| **age** |  |  |  | 0.5 |
| 20-25 | 41 (40%) | 37 (39%) | 4 (50%) |  |
| 26-30 | 38 (37%) | 36 (38%) | 2 (25%) |  |
| 31-35 | 7 (6.9%) | 7 (7.4%) | 0 (0%) |  |
| 36-40 | 8 (7.8%) | 6 (6.4%) | 2 (25%) |  |
| 41-45 | 4 (3.9%) | 4 (4.3%) | 0 (0%) |  |
| above 50 | 4 (3.9%) | 4 (4.3%) | 0 (0%) |  |
| **gender** |  |  |  | 0.054 |
| female | 71 (70%) | 68 (72%) | 3 (38%) |  |
| male | 31 (30%) | 26 (28%) | 5 (63%) |  |
| **work\_hours** |  |  |  | 0.002 |
| >80 | 9 (8.8%) | 6 (6.4%) | 3 (38%) |  |
| 1-10 | 13 (13%) | 13 (14%) | 0 (0%) |  |
| 11-20 | 1 (1.0%) | 1 (1.1%) | 0 (0%) |  |
| 21-30 | 2 (2.0%) | 2 (2.1%) | 0 (0%) |  |
| 31-40 | 16 (16%) | 16 (17%) | 0 (0%) |  |
| 41-50 | 27 (26%) | 27 (29%) | 0 (0%) |  |
| 51-60 | 13 (13%) | 13 (14%) | 0 (0%) |  |
| 61-70 | 8 (7.8%) | 6 (6.4%) | 2 (25%) |  |
| 71-80 | 13 (13%) | 10 (11%) | 3 (38%) |  |
| **qualification** |  |  |  | 0.03 |
| house officer | 28 (27%) | 22 (23%) | 6 (75%) |  |
| medical officer | 7 (6.9%) | 7 (7.4%) | 0 (0%) |  |
| medical specialist | 11 (11%) | 11 (12%) | 0 (0%) |  |
| nursing staff | 36 (35%) | 36 (38%) | 0 (0%) |  |
| post graduate resident | 18 (18%) | 16 (17%) | 2 (25%) |  |
| working in administration(DMS, IT person) | 2 (2.0%) | 2 (2.1%) | 0 (0%) |  |
| **dept** |  |  |  | 0.01 |
| department of infectious diseases DID | 33 (32%) | 32 (34%) | 1 (13%) |  |
| emergency medicine | 19 (19%) | 19 (20%) | 0 (0%) |  |
| medicine | 39 (38%) | 36 (38%) | 3 (38%) |  |
| pathology | 1 (1.0%) | 1 (1.1%) | 0 (0%) |  |
| peadiatrics | 9 (8.8%) | 5 (5.3%) | 4 (50%) |  |
| surgery | 1 (1.0%) | 1 (1.1%) | 0 (0%) |  |
| **marital\_status** |  |  |  | 0.7 |
| married | 37 (36%) | 35 (37%) | 2 (25%) |  |
| single | 65 (64%) | 59 (63%) | 6 (75%) |  |
| **location** |  |  |  | >0.9 |
| day scholer | 68 (67%) | 63 (67%) | 5 (63%) |  |
| hostelite | 34 (33%) | 31 (33%) | 3 (38%) |  |
| **work\_location** |  |  |  | >0.9 |
| dengue OPD | 6 (6.1%) | 6 (6.6%) | 0 (0%) |  |
| dengue ward | 71 (72%) | 64 (70%) | 7 (88%) |  |
| emergency | 14 (14%) | 13 (14%) | 1 (13%) |  |
| ICU | 8 (8.1%) | 8 (8.8%) | 0 (0%) |  |
| Missing | 3 | 3 | 0 |  |
| **dengue\_cases** |  |  |  | 0.3 |
| 1-5 | 6 (5.9%) | 6 (6.4%) | 0 (0%) |  |
| 16-25 | 24 (24%) | 22 (23%) | 2 (25%) |  |
| 26-50 | 28 (27%) | 27 (29%) | 1 (13%) |  |
| 51-100 | 18 (18%) | 17 (18%) | 1 (13%) |  |
| 6-15 | 15 (15%) | 14 (15%) | 1 (13%) |  |
| more than 100 | 11 (11%) | 8 (8.5%) | 3 (38%) |  |
| **Stress** | 7.4 (4.7) | 7.3 (4.7) | 8.0 (5.1) | 0.8 |
| **Anxiety** | 6.5 (4.3) | 6.6 (4.2) | 5.9 (6.0) | 0.5 |
| **Depression** | 12 (8) | 12 (8) | 9 (9) | 0.4 |
| **EE\_Level** |  |  |  | 0.003 |
| Low | 27 (26%) | 27 (29%) | 0 (0%) |  |
| Moderate | 29 (28%) | 29 (31%) | 0 (0%) |  |
| High | 46 (45%) | 38 (40%) | 8 (100%) |  |
| **PA\_Level** |  |  |  | <0.001 |
| Low | 26 (25%) | 18 (19%) | 8 (100%) |  |
| Moderate | 24 (24%) | 24 (26%) | 0 (0%) |  |
| High | 52 (51%) | 52 (55%) | 0 (0%) |  |
| **DP\_Level** |  |  |  | 0.008 |
| Low | 23 (23%) | 23 (24%) | 0 (0%) |  |
| Moderate | 29 (28%) | 29 (31%) | 0 (0%) |  |
| High | 50 (49%) | 42 (45%) | 8 (100%) |  |
| *1* n (%); Mean (SD) |  |  |  |  |
| *2* Fisher’s exact test; Wilcoxon rank sum test |  |  |  |  |







A graph of a chart

Description automatically generated with medium confidence