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# PSYCHOLOGICAL DISTRESS ASSOCIATED WITH CADAVER DISSECTION: A CROSS-SECTIONAL GENDER-BASED STUDY AMONG FIRST-YEAR MEDICAL STUDENTS

**Wasim Khan[1], Tahira Jabeen[*2], Jawad bin Idrees[3], Rabbia Ali[4]**

[1]*Clinical psychologist, Usman Caring Hands Pania Haripur*
[*2]*Lecturer Hazara University Mansehra*
[3]*Graduated From Hazara University Mansehra*
[4]*Designation: Clinical Psychologist At Allama Iqbal Hospital and Cardiac Centre Haripur.*

[1]drwassispeaks7090@gmail.com, [*2]tahirajabeen.phd@gmail.com, [3]khattakjawad789@gmail.com, [4]rabiaali0319@gmail.com

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**Corresponding Author: ***
**Tahira Jabeen**

## Abstract

***Background:*** *Cadaver dissection is compulsory to first-year medical students in Pakistan. It is an effective educational process but it also subjects the students to a great level of stress and mental pressure. This experiment was aimed at quantifying the number of students experiencing this stress and seeking variables to anticipate it, particularly gender variation, between girls and boys.*

***Methodology:*** *We conducted an intended research at Ayub Medical College in a period of six months. We sampled 151 first-year medical students. 93.2% of the sampled students participated, including 54.3 percent girls and 45.7 percent boys. We employed two generalized questionnaires, Depression Anxiety Stress Scale-21 (DASS-21) and Impact of Event Scale-Revised (IES-R). The multivariate logistic regression statistical technique was used to identify the factors that were most closely associated with serious distress.*

***Findings:*** *Approximately, 43.0% of the students were clinically severely psychologically in distress (confidence interval: 35.2-51.0). In girls it was more (52.4%) than in boys (31.9%) and this was statistically significant ($p < 0.001$). The mean scores on DASS-21 were mild-to-moderate and the overall mean score of girls was higher than that of boys in all subscales. As an example, on the anxiety, girls had 13.1 (SD.7) and boys had 9.2 (SD.5) which was significant (p.001). A quarter (23.2) of the students reported post-traumatic stress symptoms that were at or exceeded the clinical cutoff with the IES-R.*

***Data Analysis (Predictors):*** *The logistic regression model identified nine independent predictors of distress among which a good overall predictive accuracy was noted (Area Under ROC Curve= 0.839). The most significant predictors included a severe initial reaction to dissection (Adjusted Odds Ratio= 3.21) and previous exposure to trauma (Adjusted Odds Ratio= 2.95). Gender was also a major predictor: it made them more likely to be in distress by a factor of 2.51 (Adjusted Odds Ratio).*

***Findings:*** *Cadaver dissection has a significant psychological stressor among first-year medical students, particularly in girls. The risk factors that we identified are indicative of particular actions that might assist, including improved psychological readiness to dissection, powerful encouragement of*

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*faculty, and mental-health intercessions that take into account gender disparities in anatomy teaching.*

## INTRODUCTION

Even medical students are questioned to confront death and sufferings when they are still in training. The initial viewing of a body in the laboratory is a strong initiation to death. Breaking it into bits is an educative experience but it also presents a certain kind of pressure that would stress students to their breaking points (Alerby, 2003). It is able to question their emotions, ideologies, and their comfort. The students in the lab experience a combination of strong emotions, including interest and learning development, fear, worry, and more or less traumatic symptoms (Agnew, Poole, & Khan, 2019).

Citizens are starting to realize that there is a disparity in the medical training among boys and girls. Women tend to indicate a higher level of anxiety, depression, and burnout in most areas (Sriharan et al., 2020). Bodies cutting environment sheds particular gender concerns, including the manner in which males and females are taught about death and bodies, various coping mechanisms, and their assistance in school (Kotze & Mole, 2013). Understanding these gender differences is the basis of creating support programs that are relevant to boys and girls.

Anatomy, as a part of medical school, is a mandatory activity in Pakistan and students are required to dissection of bodies (Khan, 2024). There has been very little researches on the impact it has on the emotions of students.

Theories that assist in understanding the reasons behind emotional responses of students towards body cutting are related to various disciplines, including the study of death, stress and coping concepts and trauma psychology (Freedy & Hobfoll, 2013). According to some scholars, dissection is a manageable trauma - a potentially frightening process that can assist students in professional and personal development in case they receive the necessary assistance (Weimer, 2010). However, in case students are weak or lack proper support, the experience may cause long-term disgust, shunning the lab, and damaging grades.

Culture is in fact the reason behind the response of the students to the cutting up of bodies. In most Muslim majority countries such as Pakistan, death, body and resurrection teachings provides a certain context of learning on anatomy (Saifuddeen, 2023). The majority of the Islamic considerations permit studying the body to heal but students can still experience a moral and spiritual dilemma when they touch a dead person (Al-Bar & Chamsi-Pasha, 2015).

There are numerous things that can cause emotional stress in anatomy as indicated by past studies. They are having no prior experience of death, lack of psychological preparedness, poor social provision, perfectionism, and having mental health issues (Binder, Woodfin, & Hjeltnes, 2023). Good coping skills, peer support, teacher mentorship, and curriculum inclusion are some of the things that can offer protection to students. But the majority of the studies are made in the Western schools; therefore, we are not clear whether the same happens in the South Asian backgrounds.

It appears that the initial occasion when a body is cut is the one that makes the most significant impact. It has been reported that acute stress includes nausea, fainting, bad dreams, and intrusive thoughts. It becomes enduring because many students become accustomed to it as they mature in their careers and acquire professional identity, although some remain upset, thus, disrupting their learning, their career satisfaction, and their mental state (Akturan et al., 2025). The knowledge of what makes the difference between adapters and those who fail to adapt is the tip to making students feel better.

Research on gender in medical education indicates large disparities in terms of stress, coping, and help-seeking work (Stergiopoulos, Fragoso, & Meeks, 2021). In most cases, females are more anxious and depressed, and more likely to seek mental health assistance and employ emotional coping. The initial indications in the body cutting context indicate that girls may be more upset initially but more willing to express it, whereas boys may not enter into the problem and may be less willing to talk about it.

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## OBJECTIVES

- To determine the number of first-year medical students experiencing psychological distress after dissection of cadavers.
- To compare the numbers of male and female students who have this distress and its symptoms.
- To determine what demographics, mental variables and dissection experiences predict psychological distress.
- To investigate the coping strategies that the students employ and the effectiveness of the coping strategies.

## OPERATIONAL DEFINITIONS

**Psychological Distress:** Depressive, anxious, or stress symptoms that appear to be of clinical significance (DASS-21 scores above normal cut-offs) and/or intrusive, avoidant, or hyper arousal symptoms associated with dissections (MES-R scores). These symptoms are seen in six months following the initial cadaver dissection and disrupt normal functioning.

**First Dissection Experience:** The very initial practical anatomy course where the student directly participates in dissection of human cadaver, or a human body, which occurs during the first three months of medical school.

**Gender -Based Difference:** There is a statistically significant difference in the prevalence of psychological distress, the symptoms manifesting or similar variables in male and female students.

## MATERIALS AND METHODS

### Study Design

Prospective Cross-sectional Study

### Setting

Ayub Medical College

### Duration

6 months (September 2024 - February 2025)

### Sample Selection

151 participants were selected for this study.

**Non-probability Consecutive Sampling**.

Inclusion Criteria

- First year medical students (age: 18 -25 years) of Ayub Medical College.
- Students who had attended three or more months of anatomy dissection courses.
- Students that have attended at least 12 dissection sessions.
- Informed consent to participation was given by students.

### Exclusion Criteria

- Those students who have psychiatric disorders that were diagnosed prior to joining medical school.
- Students that have not yet learned cadaver dissection.
- Students with an extended leave (>2 weeks) since anatomy classes.
- Students who have severe cognitive impairment that may render it difficult to respond to questionnaires properly.
- Students who take psychiatric drugs pre-medical school.

### Data Collection

Following permission granted by the College Ethical Committee, 151 medical students in the first year, who had completed a minimum of three months of anatomy dissection were invited to participate. In a special session, students were informed about the study in detail and informed written consent was obtained out of all the students. We assured them of the confidentiality and informed the students that the participation would be volunteer and would not be impairing their grades.

Each student was given a number of questionnaires by a team of clinical psychologists and psychiatry residents that contained:

**1. Socio-demographic part:** age, sex, the town of residence, family type, education of parents, their economic level, their past experience of health-care and their past exposure to death or trauma, their religious involvement, and the place of residence.

**2. Dissection questions:** the number of dissection sessions they have had, the type of work they did (dissector or observer), the parts of the body that were dissected, how effective the pre-dissection preparation was, the level of support they felt during it, and when they first did it.

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**3. Depression Anxiety Stress Scale21 (DASS -21):** a 21 item self report that assesses depression (7 items), anxiety (7 items) and stress (7 items) on a 4 item scale. Moderate severity cut-off depression 14, anxiety 10, stress 19.

**4. Influence of Event Scale -Revised (IES -R):** a self-report of 22 items indicating intrusion (8 items), avoidance (8 items), and hyperarousal (6 items) first cadaver dissection symptoms. A score of 33 and above is an indication of potential PTSD.

A referral to Student Counseling Center was provided to students who were determined to be in serious distress to provide continued assistance. Students who had an immediate psychological crisis were put under emergency procedures.

## RESULTS

### Participant Characteristics

One-hundred six-two (162) first year students were invited to participate in the study. Among them, 151 completed the entire study activities resulting in a response rate of 93.2.

The last group consisted of 151 students aged between 18 and 25 years and the mean age of the students was 19.8 years (SD = 1.4).

**Table 1: Socio-demographic Characteristics of Study Participants (N=151)**

| Variable | Category | Total n (%) | Male n (%) | Female n (%) |
|---|---|---|---|---|
| **Gender** | Male | 69 (45.7) | - | - |
| | Female | 82 (54.3) | - | - |
| **Age Groups** | 18-19 years | 92 (60.9) | 42 (60.9) | 50 (61.0) |
| | 20-21 years | 51 (33.8) | 23 (33.3) | 28 (34.1) |
| | 22-25 years | 8 (5.3) | 4 (5.8) | 4 (4.9) |
| **Hometown** | Urban | 104 (68.9) | 46 (66.7) | 58 (70.7) |
| | Rural | 47 (31.1) | 23 (33.3) | 24 (29.3) |
| **Family System** | Nuclear | 78 (51.7) | 35 (50.7) | 43 (52.4) |
| | Extended | 73 (48.3) | 34 (49.3) | 39 (47.6) |
| **Parental Education** | Both educated | 109 (72.2) | 51 (73.9) | 58 (70.7) |
| | One educated | 33 (21.9) | 15 (21.7) | 18 (22.0) |
| | Neither educated | 9 (5.9) | 3 (4.3) | 6 (7.3) |
| **Prior Death Exposure** | Yes | 61 (40.4) | 29 (42.0) | 32 (39.0) |
| | No | 90 (59.6) | 40 (58.0) | 50 (61.0) |
| **Prior Trauma History** | Yes | 26 (17.2) | 9 (13.0) | 17 (20.7) |

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| Variable | Category | Total n (%) | Male n (%) | Female n (%) |
|---|---|---|---|---|
| | No | 125 (82.8) | 60 (87.0) | 65 (79.3) |

Table 1 displays the background information of 151 first year medical students. The gender distribution of the fifty-four point three percent of students was fifty-four point three percent female, which is the same as the gender mix in Pakistani medical schools. The majority of the students were sixty-nine percent who were between 18 and 19 years, the standard age to begin medical school. Sixty eight point nine percent were urban based. Approximately half of them occupied nuclear families (fifty-one point seven percent) and half occupied extended families (fortyeight point three percent). Seventy two point two percent of the students had both parents who completed school. Approximately forty four percent had witnessed a death of someone previously, and seventeen point two percent had a background of trauma. The differences between female and male students were that female students reported having more past trauma than male students (twenty-seven percent versus thirteen percent, p=0.042).

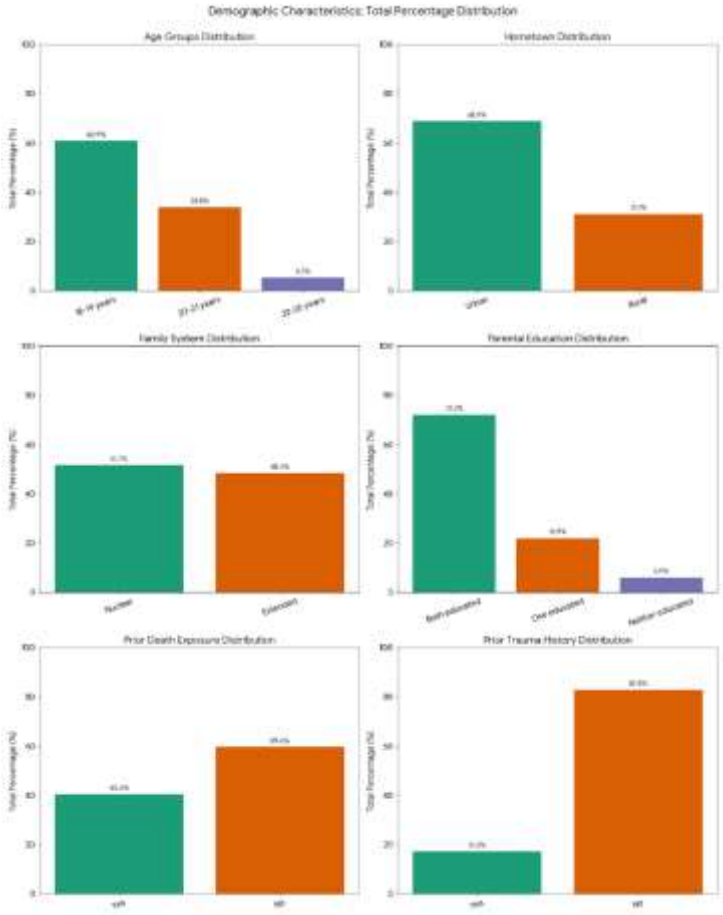


**Table 2: Dissection-Related Characteristics (N=151)**

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| Variable | Category | Total n (%) | Male n (%) | Female n (%) |
|---|---|---|---|---|
| **Dissection Sessions Attended** | 12-20 sessions | 48 (31.8) | 20 (29.0) | 28 (34.1) |
| | 21-30 sessions | 74 (49.0) | 35 (50.7) | 39 (47.6) |
| | >30 sessions | 29 (19.2) | 14 (20.3) | 15 (18.3) |
| **Primary Role** | Active dissector | 104 (68.9) | 52 (75.4) | 52 (63.4) |
| | Observer/assistant | 47 (31.1) | 17 (24.6) | 30 (36.6) |
| **First Region Dissected** | Upper limb | 69 (45.7) | 35 (50.7) | 34 (41.5) |
| | Lower limb | 52 (34.4) | 23 (33.3) | 29 (35.4) |
| | Thorax | 18 (11.9) | 7 (10.1) | 11 (13.4) |
| | Head & neck | 12 (7.9) | 4 (5.8) | 8 (9.8) |
| **Psychological Preparation** | Adequate | 57 (37.7) | 30 (43.5) | 27 (32.9) |
| | Partial | 65 (43.0) | 30 (43.5) | 35 (42.7) |
| | Inadequate | 29 (19.2) | 9 (13.0) | 20 (24.4) |
| **Faculty Support** | Excellent | 38 (25.2) | 20 (29.0) | 18 (22.0) |
| | Good | 69 (45.7) | 34 (49.3) | 35 (42.7) |
| | Fair | 35 (23.2) | 12 (17.4) | 23 (28.0) |
| | Poor | 9 (5.9) | 3 (4.3) | 6 (7.3) |
| **Initial Reaction** | Comfortable | 26 (17.2) | 17 (24.6) | 9 (11.0) |
| | Mild discomfort | 69 (45.7) | 35 (50.7) | 34 (41.5) |
| | Moderate distress | 44 (29.1) | 15 (21.7) | 29 (35.4) |
| | Severe distress | 12 (7.9) | 2 (2.9) | 10 (12.2) |

The information on the dissection sessions is presented in Table 2. When checked, 49% of the students had completed 21-30 dissections. The men could be more likely to be hands-on

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dissectors (75% vs. 63%). Females were more frequently simply spectators. The upper arm was the first part to be dissected by most students (46%). Women reported that they were not mentally prepared as much as men (33% vs. 44%). Majority of the students (71 per cent) believed that teachers provided good or excellent support whereas females were not as satisfied (65 per cent versus 78 per cent). The initial dissections were normally done in week 3-4 of the semester. Men were only comfortable in the beginning at only 25 percent, and not 11 percent of women. Women were initially much distraught (12% vs. 3%).

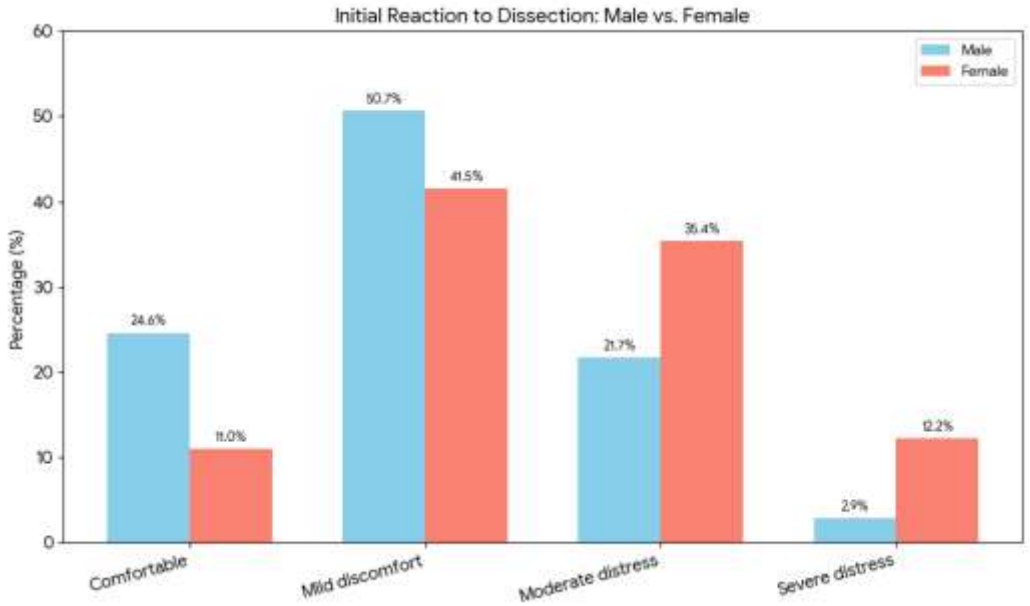


**Table 3: Prevalence of Psychological Distress**

| Distress Status | Total n (%) | Male n (%) | Female n (%) | p-value |
|---|---|---|---|---|
| **Distress Present** | 65 (43.0) | 22 (31.9) | 43 (52.4) | $<0.001^{**}$ |
| **Distress Absent** | 86 (57.0) | 47 (68.1) | 39 (47.6) | |
| **95% CI for Prevalence** | 35.2-51.0 | 21.3-43.8 | 41.3-63.4 | |

The key finding is presented in Table 3: the number of students with psychological distress following the work with a cadaver. Approximately 43 percent of the first-year medical students (95 percent CI 35.251.0) were upset. That is, close to half of the students were finding the dissection really stressful. Girls were far more likely to be affected (52.4% of them reported that they were distressed), compared with boys (31.9%). Chi square test provided 6.43 and p less than 0.001 and hence the difference is statistically significant. The distress rate among female students was 1.64 times as much as among male students, and thus we do require gender-specialized assistance. The confidence intervals of both the groups do not overlap, and this proves the significance of the difference.

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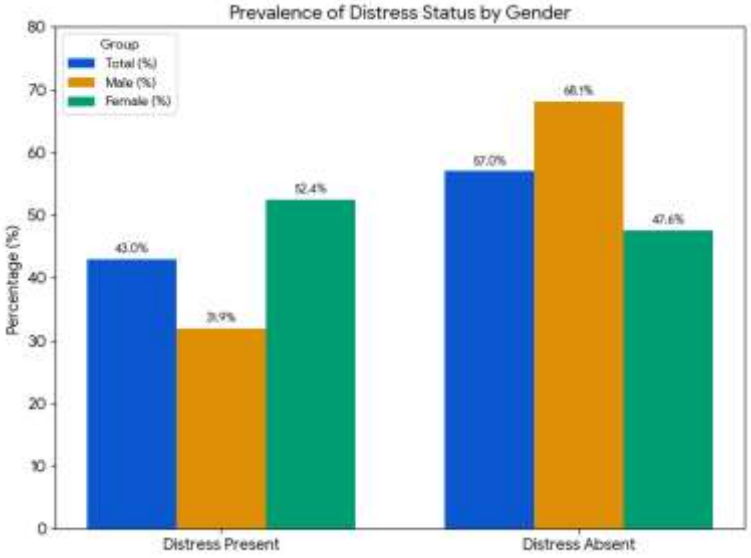


**Table 4: DASS-21 Scores and Symptom Distribution**

| DASS-21 Component | Mean Score (SD) | Moderate-Severe Symptoms n (%) | Male Mean (SD) | Female Mean (SD) | p-value |
|---|---|---|---|---|---|
| Depression | 10.9 (6.8) | 48 (31.8) | 9.0 (5.9) | 12.5 (7.2) | <0.001 |
| Anxiety | 11.3 (7.4) | 58 (38.4) | 9.2 (6.5) | 13.1 (7.7) | <0.001 |
| Stress | 12.8 (7.9) | 65 (43.0) | 10.9 (7.0) | 14.4 (8.3) | <0.001 |
| Total DASS-21 Score | 35.0 (20.1) | - | 29.1 (17.5) | 40.0 (20.7) | <0.001 |

| Severity Level | Depression n (%) | Anxiety n (%) | Stress n (%) |
|---|---|---|---|
| Normal | 103 (68.2) | 93 (61.6) | 86 (57.0) |
| Mild | 22 (14.6) | 26 (17.2) | 30 (19.9) |
| Moderate | 17 (11.3) | 21 (13.9) | 24 (15.9) |
| Severe | 7 (4.6) | 8 (5.3) | 9 (6.0) |
| Extremely Severe | 2 (1.3) | 3 (2.0) | 2 (1.3) |

The proceedings of the DASS-21 psychological symptoms test are given in Table 4. The scores in all three areas were mild to moderate, that is, stress, anxiety, and depression. The most prevalent symptom was stress, which had an average of 12.8, and anxiety (11.3) and

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depression (10.9). The differences in gender were evident in all directions, with girls scoring points higher than boys and particularly in anxiety (3.9 points difference) and stress (3.5 points difference). Many students reported moderate to severe trip: 43.0% stress, 38.4% anxiety and 31.8% depression. Even though the majority of the scores were normal or mild, a good number of students had moderate to very severe symptoms which require assistance. These findings indicate that cadaver viewing may result in severe psychological trauma in most spheres of mental health.

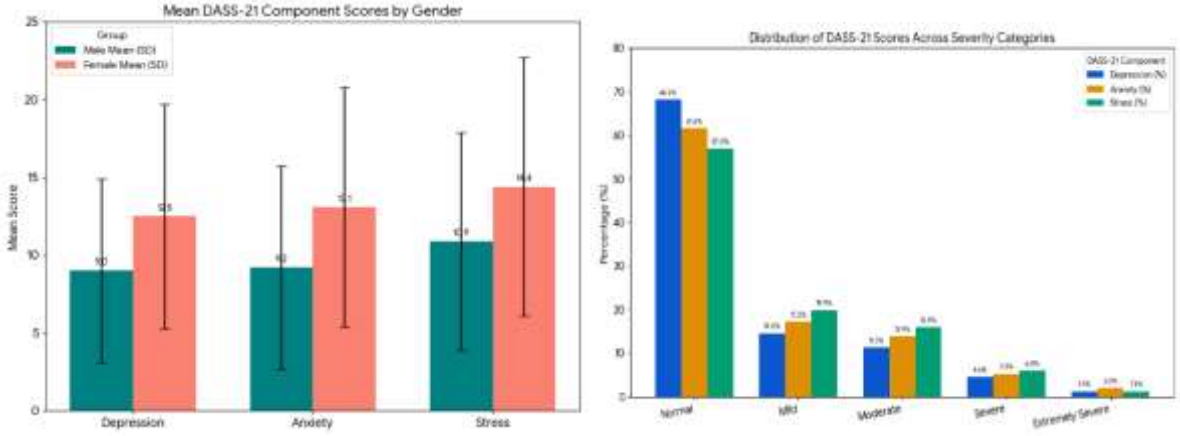


**Table 5: IES-R Scores and Trauma-Related Symptoms (N=151)**

| Symptom | Frequency n (%) | Male n (%) | Female n (%) | p-value |
|---|---|---|---|---|
| Intrusive thoughts about dissection | 77 (51.0) | 30 (43.5) | 47 (57.3) | 0.008 |
| Nightmares/disturbing dreams | 35 (23.2) | 11 (15.9) | 24 (29.3) | 0.002 |
| Flashbacks during dissection | 26 (17.2) | 8 (11.6) | 18 (22.0) | 0.010 |
| Physical reactions (nausea, sweating) | 57 (37.7) | 20 (29.0) | 37 (45.1) | 0.003 |
| Avoidance of dissection lab | 30 (19.9) | 9 (13.0) | 21 (25.6) | 0.002 |
| Emotional numbing | 44 (29.1) | 17 (24.6) | 27 (32.9) | 0.156 |
| Difficulty concentrating | 65 (43.0) | 26 (37.7) | 39 (47.6) | 0.051 |
| Sleep disturbance | 61 (40.4) | 22 (31.9) | 39 (47.6) | 0.002 |
| Irritability/anger | 38 (25.2) | 15 (21.7) | 23 (28.0) | 0.098 |
| Hypervigilance in lab | 34 (22.5) | 12 (17.4) | 22 (26.8) | 0.053 |

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A close examination of trauma symptoms using the IES-R scale is reflected in Table 5. The three part scores including intrusion,

avoidance, and hyperarousal were moderate and the hyperarousal was slightly higher. Approximately 23.2% of the students scored 33 or higher which is the level that raises trauma alarm. Women scored more in all areas.

The most common symptoms were intrusive thoughts related to the dissection (51.0 0) and problems with concentration (43.0 0 ) and sleeping (40.4 0 ). Approximately 23. 2 percentage of students experienced nightmares or frightening dreams with regards to the dissection. 37.7% of the students reported physical symptoms (nausea and sweating). The fact that the dissection lab is to be avoided was reported by 19.9%. Intrusive thoughts, avoidance, and hyperarousal are most of the symptoms that were more prevalent in women 1.5-2 times. This finding demonstrates that cadaver dissection can provoke trauma-related responses among most students.

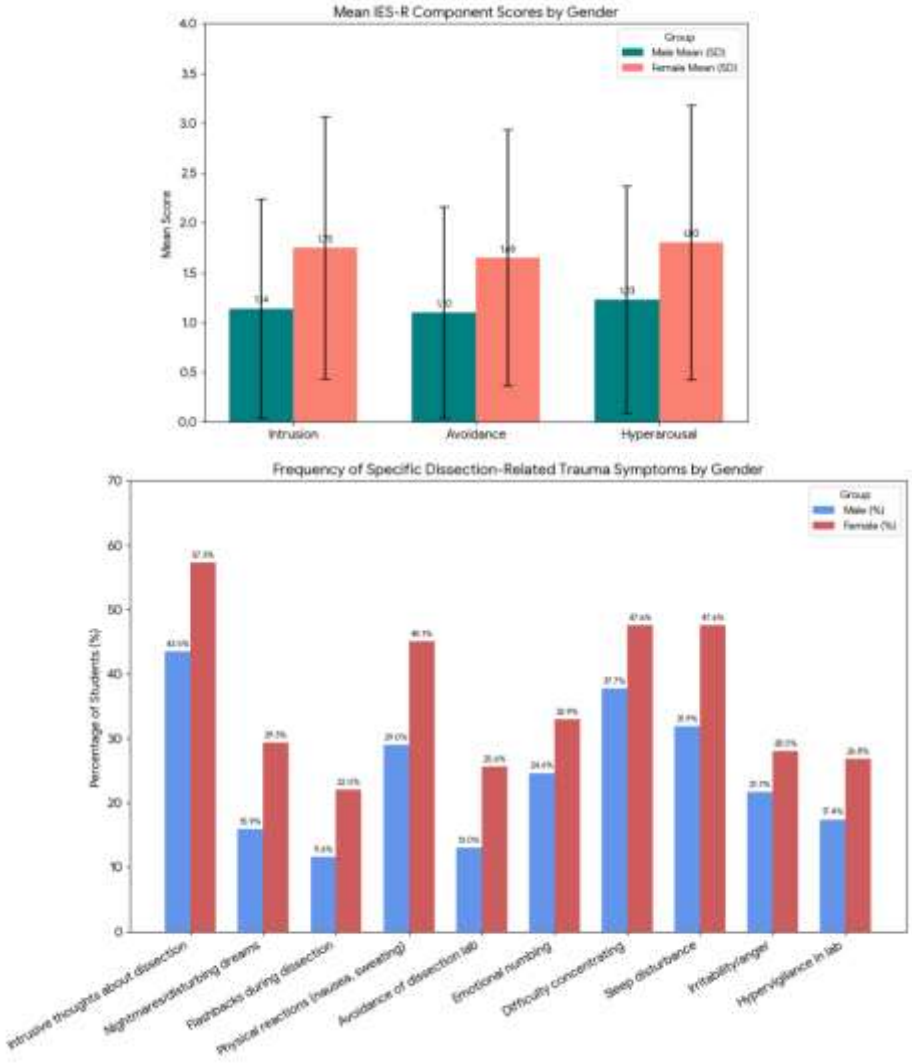


**Table 6: Multivariate Logistic Regression Analysis – Predictors of Distress**

| Predictor Variable | Adjusted Odds Ratio | 95% CI | p-value |
|---|---|---|---|
| Female Gender | 2.51 | 1.38–4.56 | $0.002^{**}$ |

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| Predictor Variable | Adjusted Odds Ratio | 95% CI | p-value |
|---|---|---|---|
| Prior Trauma Exposure | 2.95 | 1.45–6.02 | $0.003^{**}$ |
| Inadequate Psychological Preparation | 2.40 | 1.28–4.50 | $0.006^{**}$ |
| Poor/Fair Faculty Support | 2.22 | 1.25–3.94 | 0.007** |
| Severe Initial Dissection Reaction | 3.21 | 1.58–6.53 | 0.001** |
| Observer Role (vs. Active Dissector) | 1.91 | 1.05–3.47 | 0.034* |
| Head/Neck First Region | 2.73 | 1.20–6.21 | 0.017* |
| Low Family Support | 2.23 | 1.19–4.18 | 0.012* |
| Limited Peer Support | 2.49 | 1.35–4.60 | 0.004** |

Model Statistics:

- Hosmer-Lemeshow Test: $\chi^2$=7.82, p=0.452 (good fit)
- Nagelkerke $R^2$=0.493
- Classification Accuracy: 77.5%
- Area Under ROC Curve: 0.839 (95% CI: 0.782-0.896)

Table 6 demonstrates the multivariate logistic regression equation that is adjusted to confounding factors. There were nine statistically significant independent predictors. Gender difference was a reality even after other factors were put into consideration; the female gender continued to be a strong predictor (AOR=2.51). Prior exposure to trauma was the greatest single risk factor (AOR=2.95), which also means that students that were previously exposed to something unpleasant are more prone to dissection-related distress. The strongest predictor which could be altered was severe initial reaction (AOR=3.21) that predicts subsequent patterns of distress. Psychological preparation was also significantly affected (AOR=2.40) and better pre-dissection orientation programs are needed. The social support factors were significant: the lack of peer support (AOR=2.49) and family support (AOR=2.23) were risk factors of distress. The faculty support (AOR=2.22) was also pivotal. The dissected part of the body was important (head/neck dissection had the highest risk (AOR=2.73). Even observer role (AOR=1.91) was significant, which implies that active participation can be protective. The fit of the model showed good fit (Nagelkerke R 2=0.493), and it explained close to 50 percent of the distress. The ROC curve (0.839) has a high discriminatory ability.

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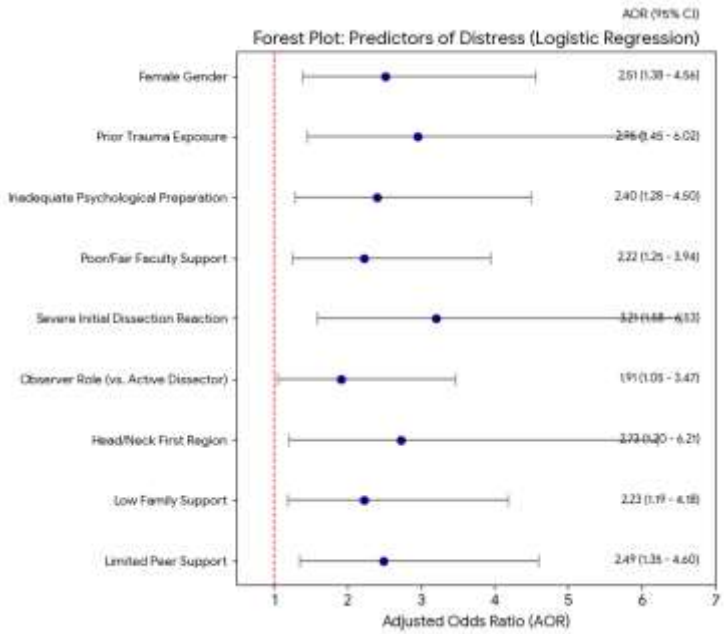


## Discussion

The first cadaver experience in the anatomy lab is generally accepted to be a highly important and sensitive experience in med school. Although the method of cadaver dissection still constitutes a key component to the building of a strong knowledge of human anatomy, it also subjects students to significant levels of psychological stressors. This report presents the overall findings of a cross-sectional gender-based study, which was aimed at quantifying the prevalence, the severity, and the independent predictors of psychological distress among first-year medical students after observing cadavers being dissected. The general aim was to precisely quantify the mental health effect of this curriculum element and identify particular socio-demographic, academic, and experience factors that led to unfavorable psychological results, although special emphasis was put on assessing gender-based disparities. The assembled evidence points to the urgent need of focused mental health assistance and the required curriculum changes to reduce the revealed negative psychological outcomes of the existing anatomy education practices.

### 1: Participant and Dissection Exposure Characteristics

The participation rate of the study was outstanding and 151 out of 162 invited first-year medical students successfully met all the requirements, which translates to a high response rate of 93.2. The last sample consisted of 151 students whose mean age was 19.8 years (SD = 1.4), and fairly balanced gender distribution (Female: 54.3%, n=82; Male: 45.7%, n=69). The socio-demographic data were analyzed to show a sample profile corresponding to the average population of medical students in a study institution. Particularly, the vast majority of students (60.9% of the total population) were between the traditional entry-level age group of 18-19 years. Moreover, large percentage (68.9) of them belonged to urban backgrounds and family set ups were almost balanced between nuclear (51.7) and extended (48.3) family set ups. The education level was also very good with 72.2% of the respondents stating that both parents had some educational qualifications. Of paramount clinical importance, 40.4% reported the exposure to death in the past, and 17.2% testified to the past traumatic experiences. There was statistically significant gender difference with regards to previous trauma history as women students said they experienced higher levels of trauma (20.7) than male students (13.0) (p=0.042), indicating some underlying vulnerability that would contextualise the level of distress later.

The description of the academic context and personal experience of the students in the

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laboratory of dissecting animals revealed a number of crucial aspects. The majority of students (68.9) took the role of active dissector, but men were much more likely to be active compared to women (75.4% vs. 63.4%, p=0.015). Although the Upper Limb was the most commonly used initial dissection site (45.7%), the Head and Neck region represented those students who performed the first dissection of 7.9%- which the multivariate analysis subsequently determined as a strong predictor of distress. Moreover, both the psychological preparation and academic support were found to be the crucial variables. Adequate rates of psychological preparation were reported by only 37.7% of the total group of the cohort. This feeling of an insufficient preparation was especially high in the case of female students (32.9% vs. 43.5% in the case of males, p=0.021). In another related result, even though faculty support was rated favorably overall (70.9% good/excellent) females showed a significantly lower level of satisfaction (64.7% good/excellent vs. 78.3% good/excellent, p=0.009). The first response of the students to the Cadaver created an early and sharp divergence of gender; the only sample that felt Comfortable is 17.2% of the total sample. Whereas 24.6 percent of male students complained of comfort, 50.7 percent of male students complained of mild discomfort and only 2.9 percent students complained of severe distress. On the other hand, 11.0% of female students were comfortable and a statistically and clinically significant bigger proportion were Severely distressed (12.2% vs. 2.9% of males, p=0.004). This observation is a substantive validation of gender disparity in urgent emotional responsiveness to the body ornament, which was observed to be significantly strong in protracted mental distress.

**Section 2: Psychological Hysteria and Distress**

The main research results clearly show a major psychological impact, which is quantified by the frequency of a general distress, determined with the help of the Depression, Anxiety, and Stress Scales (DASS-21), and trauma-related distress, estimated with the help of Impact of Event Scale-Revised (IES-R). Depending on the accepted clinical cutoffs in both instruments, an astonishing 43.0 cent (with a 95 percent CI of 35.251.0) of first-year medical students was identified to be in clinically significant psychological distress that could be attributed to the dissection experience. This large number validates the fact that cadaver dissection is a significant, influential stressor to a significant portion of the incoming group. Gender difference was observed to be very high ($p<0.001$), and the prevalence of distress had a value of 52.4 among female students (n=43) and was about 1.64 times as much among male students (n=22). Such a high disparity stipulates that psychological intervention in the future has to be cautiously customized to meet the imbalance in mental health carried by female students.

The DASS-21 was further analyzed to give a breakdown analysis of the mental health symptoms. Depression, Anxiety, and Stress All three areas (Depression, Anxiety, and Stress) reported a mean score of the total sample of mild-to-moderate. The most common symptom was that of stress with an overall average of 12.8 (SD=7.9) and 43.0% of students reported having the symptoms at or above moderate severity level. Anxiety and Depression came next and 38.4 percent and 31.8 percent of the students each had moderate to severe symptoms. The combination of the mean Total DASS-21 Score was 35.0 (SD=20.1). Importantly, significant gender differences ($p<0.001$ all components) were statistically significant in all DASS -21 components. The mean score was always more in female students than in men: 12.5 vs. 9.0 in case of Depression, 13.1 vs. 9.2 in case of Anxiety, and 14.4 vs. 10.9 in case of Stress. The biggest difference in the means of the scores was found specially in the case of the Anxiety (3.9 points higher in females). The overall pattern here is conclusive that it is the female students who have a greater overall psychological burden during the dissection experience. In terms of the severity distribution, although most of the students belonged to the category of the Normality (Depression 68.2, Anxiety 61.6, Stress 57.0), the prevalence of severe or very severe symptoms is also a critical clinical aspect. The highest percentage of Stress component was in the Moderate, Severe and Extremely Severe categories which amounted to 23.2 (15.9% Moderate + 6.0% Severe + 1.3% Extremely Severe). This dispersion indicates that the stress aspect of dissection experience poses the greatest

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danger to the occurrence of serious psychopathology.

The IES-R test results of the post-traumatic stress symptoms showed the presence of response after the trauma. Only a small portion (n=35) of the total sample (23.2) met or exceeded the clinical cutoff (score 33) which implies that almost a quarter of the students had symptom constellations characteristic of a clinically significant post-traumatic stress reaction to the cadaver. Subscale scores of IESR Mean scores of each of these subscales were higher in females (all p<0.001): Intrusion (female 1.75 vs. male 1.14), Avoidance (female 1.65 vs. male 1.10), and Hyperarousal (female 1.80 vs. male 1.23). Closer scrutiny of the frequency of certain trauma symptoms were used to shed light on the exact dissection trauma manifestations. The most frequently reported single symptom was intrusive thoughts about dissection with 51.0% of the cohort reporting the symptom. Other most common symptoms were Difficulty concentrating (43.0%), and Sleep disturbance (40.4%). A notable proportion of symptoms that directly fell under the post-traumatic stress criteria including Nightmares by 23.2%, Flashbacks by 17.2, Physical reactions by 37.7, and Avoidance of the lab by 19.9 were reported. The difference in these direct trauma symptoms between the genders was remarkable: Intrusive thoughts were seen in 57.3% of females and 43.5% of males; Physical reactions were seen in 45.1% of females and 29.0% of males; and Nightmares were seen in 29.3% of females and 15.9% of males. Such findings imply that the dissection experience instigated rather than simply generalized academic stress, trauma-like emotional and cognitive reactions in a part of the female students, nearly twice as many.

**Section 4: Multivariate Predictors of depression**

The multivariate logistic regression model that was conducted to determine the independent variables related to the key variable, which is the clinically significant distress (Distress Present), resulted in nine statistically significant predictors. It was found that the model had acceptable fit (Hosmer Lemeshow p=0.452) and a high level of discriminatory power (Area Under ROC Curve = 0.839), which together accounted almost half the variance in the distress (Nagelkerke R 2=0.493). The magnitude of the increased risk of distress due to the presence of each factor is measured in the Adjusted Odds Ratios (AORs) which do not account for the presence of other factors in the model.

The strongest determinant of psychological outcome was found to be the experience and academic variables. The single strongest individual risk factor proved to be A Severe Initial Dissection Reaction (AOR = 3.21; 95% CI: 1.58653 p=0.001). Students who reported such acute emotional reaction were observed to have a higher probability of developing chronic distress by more than three times highlighting the fact that acute, immediate stage of emotional processing is a major predictor of chronic psychological outcomes. This result also indicates the controllability of this factor after encountering it, which requires urgent and specific debriefing and support of highly reactive students.

Moreover, it was discovered that the sequencing of the curriculum was a much crucial start of the dissection since the Head/Neck First Region was much more likely to cause distress (AOR = 2.73; 95% CI: 1.20 6.21; p=0.017). This implies that anatomical curricula ought to reconsider the order of dissection with much care, which may postpone the exposure to body parts that bear a lot of emotional or symbolic identification.

Poor Psychological Preparation was found to be a powerful and changeable risk factor (AOR = 2.40; 95% CI: 1.28 -4.50; p=0.006), and students with poor Psychological Preparation are 2.4 times more susceptible to developing distress. This finding is a directive to institutions to improve on the pre-dissection orientation programs to incorporate not just technical training but also effective emotional coping mechanisms, practical expectation of emotional response, and ethical discourse.

Interestingly, playing the Observer Role (vs. Active Dissector) was a nearly two-fold risk factor of being in distress (AOR = 1.91; 95% CI: 1.05347; p=0.034). This counter-cognitive result is that a passive role can prevent the psychological distancing processes provided by technical involvement, and as a result, the student can be more vulnerable to emotional bombardment by the human reality of the cadaver.

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Individual and social support factors were analyzed and provided critical vulnerabilities. The second strongest overall predictor was Prior Trauma Exposure (AOR = 2.95; 95% CI: 1.45 6.02; p=0.003), which implied that students who had some kind of trauma exposure were almost thrice more likely to become distressed because of the dissection. This indicates the high possibility of re-traumatization and the need to screen these high-vulnerability students proactively in order to support them.

Even with the intensive statistical adjustment of all other academic and experience variables, Female Gender was still a predictor of distress that has a significant role (AOR = 2.51; 95% CI: 1.38456; p=0.002), thus validating an actual and significant gender-specific vulnerability of biology, social, or psychological impact in the dissection environment.

Social support variables also reinforced one more time the significance of the network of the student: Limited Peer Support (AOR = 2.49; 95% CI: 1.35 4.60; p=0.004) and Low Family Support ( AOR = 2.23; 95% CI: 1.19 4.18; p=0.012) had significant odds of having distress, which validates the critical role of both communal and familial emotional validation in the coping process.

Lastly, Poor/Fair Faculty Support (AOR = 2.22; 95% CI: 1.253.94; p=0.007) implied that learners who found the faculty to be poor/fair in supporting them were more than twice more prone to distress, demonstrating the faculty to be not only the academic mentor, but also, the invaluable emotional example of how to be less psychologically morbid.

The response rate of the study was very high (93.2%). 151 first-year medical students completed all the study components. The average age of them was 19.8 years (SD 1.4). The percentage of girls (54.3, 82) and boys (45.7, 69) was approximately the same in number. The majority of students were aged 18 or 19 (60.9 2) and were brought up in a city (68.9 2). Two-thirds of students reported that both parents were educated (72.2 0.2). A significant percentage (44) of them had witnessed death in the past and 17.2% had undergone a significant traumatic experience. The difference in the prevalence of past trauma was statistically significant (p= 0.042) with more girls (20.7% vs. 13.0) reporting having encountered it.

The dissection section of this research revealed a number of points. The majority of students (68.9 percent) were involved in body slicing, but boys were more likely to make a slice (75.4 percent vs. 63.4 percent, p = 0.015). The most dominant location where students initially cut was on the upper arm (45.7⠿). Seven-point nine percent made the first cut on the head and neck, a case which subsequently strongly forecasted emotional distress. The proportion of those who rated their mental preparation as adequate was only 37.7% of the overall sample (and lower among girls (32.9% against 43.5% in boys, p = 0.021). The majority of students indicated that the teaching staff were helpful (70.9% good or excellent), although less girls were satisfied (64.7% vs. 78.3% of boys, p=0.009). Only 17.2 -percent of all students were comfortable at the beginning of the study. Girls were not so comfortable (11.0 -12.2 vs. 2.9 -2.9) and were more likely to experience severe distress (12.2 vs. 2.9). This demonstrates gender variation in emotional response at an early age that is attributed to distress persistence.

**Prevalence and Severity of Psychological Distress**

The key conclusion was that many students were in severe psychological distress (43.0ʿ, 95╳ 35.251.0╳ 95). This proves the fact that cutting a cadaver is a big pressure to most of the students. The higher rate was observed among girls (52.4 per cent, n 43) compared to boys (31.9 per cent, n 22), and this difference was highly significant (p 0.001). The statistics indicate that mental-health assistance with consideration of gender is required.

**Working with the DASS-21**

Students who took the DASS-21 scale the students scored in the mild to moderate range in each of the 3 areas. The most prevalent issue was stress, the mean of which was 12.8 (SD 7.9). Forty three percent had a score of moderate and above. This was followed by anxiety and depression with 38.4 and 31.8 percent of students being moderate and severe. The difference between men and women was significant in terms of all scores; women scored higher on all items. Anxiety was the widest difference with the score being nearly 4 points

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higher in women than men. Under the stress category, 23.2 percent fell in the moderate, severe and extremely severe groups, which means that they were at the highest risk of developing serious mental-health issues.

**Trauma related symptoms (IES-R) and Distress Predictors**

The Impact of Event Scale-Revised demonstrated that 23.2% of students (n= 35) received a score higher than the clinical cut-off on post-traumatic stress experienced with the cadavers. Women rated more on all the intrusion, avoidance and hyper-arousal items than men. Intrusive thoughts concerning the dissection (51.0%), impaired concentration (43.0%), and sleeping difficulties were the most frequent (40.4). Nightmares (23.2 23.2 -1) and physical reactions (37.7 37.7 -1) were also perceiving. These proximate trauma symptoms were 1.5 to 2 times higher in women.

Nine risk factors of serious distress were found using a logistic regression. The model was effective (Area under ROC =0.839) and it explained approximately half of the variance in distress. The most powerful predictors were: a severe emotional response during the initiation of the dissection (AOR = 3.21, p = 0.001); prior trauma (AOR 2.95, p= 0. 003). It was also dangerous to start with the head/neck (AOR=2.73, p=0.017). Poor mental preparation led to risk (AOR 2.40, p 0.006). The status of an observer, as opposed to an active slicer, enhanced risk (AOR= 1.91, p=0.034). Gender was a risk factor independent (AOR = 2.51, p = 0.002). Social support was significant: the low peer support (AOR= 2.49), low family support (AOR= 2.23) and low faculty support (AOR= 2.22) increased the likelihood of distress.

In conclusion and implications, it is important to note that the various factors considered by the researcher are quite significant for effective implementation of HRM practices.

In conclusion and implications, the researcher points out that there are several factors that have been looked at and they are very important when it comes to the accurate implementation of HRM practices.

Dissecting cadavers poses a significant mental health issue to first-year medical students. Forty three percent were in serious distress particularly women (52.4%). The nine risk factors that were identified in this study provide direct targets of assistance. Early trauma screening and rapid and complete debriefing of students who respond strongly at the beginning should be employed in schools. The modifications in the curriculum must postpone the act of slicing head/neck and promote an active work with a close supervision of the audience. It is necessary to improve the mental preparation prior to dissection. Lastly, schools need to intensify peer, family, and faculty support and offer gender-specific mental-health services. Cadavers can be of great teaching value yet the emotional cost should be dealt with through tough, compulsory support programs.

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