

# Impacts of Coping Strategies for Electricity Load Shedding among University Students

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## ABSTRACT

**Introduction:** Electricity crisis is growing day by day which affects our routine life. The purpose of the study was to assess the impacts and coping strategies of electricity load shedding that were adopted by university students.

**Methodology:** The descriptive cross-sectional study was carried out among 384 university students during campus timings at the University of Sindh Jamshoro. The level of the confidence interval was set 95% with 0.05% of margin error. A convenient sampling technique was used. The raw data were analyzed and edited in MS Excel and then entered in SPSS version 16. Frequency and percentage were calculated for measuring the impact of load shedding and chi-square test was used where it needed. A p-value of less than 0.05 was considered statistically significant.

**Results:** The mean age of the respondents was 21.7 years,  $\pm$  2.65. The findings of the present study showed 78% of students felt physically, mentally and emotionally ill due to load shedding. Our study revealed 71.61% of students who felt anxiety due to load shedding. A study result showed 41% of the respondents who became angry and caused physical violence. Present study also identified 77% of the participant's sleep was disturbed. A study indicated 76.56% of student's punctuality was affected. Our study inquired 75% students' grades were affected and 87% students could not maintain concentration during lectures. Walking, physical exercise, and listening to music were identified as coping strategies.

**Conclusion:** Electricity load shedding badly affects the overall performance of students including their punctuality, concentration during classes, and preparation of assignments, examinations, and results. Furthermore, the findings of this research should be confirmed in a cohort or longitudinal studies.

**Keywords:** Load shedding, coping strategies, physical illnesses, and mental illnesses.

## INTRODUCTION

Pakistan is facing an extreme shortage of electricity presenting one of the most serious problems of energy crises[1, 2], causing widespread load shedding that has given rise to social and economic problems and disturbed students learning, and led to stress[3]. Students are unable to submit assignments on time which affect their results[4]. Load shedding not only affects the students but also disturbs ordinary people's routine work[5]. Further affecting their decision-making about studies[6].

Moreover, students are unable to entertain awareness and educational programs on media also[7]. Sleep deprivation has been a major health issue that leads to irritability, boredom, and stress[8], resulting in poor performance and wastage of study time[9]. Students protest against electric power companies for not solving the crisis[10]. Educational institutes are unable to conduct classes smoothly, which loses students' interest in studies[11], shortage of electricity affects the availability of water as a result students are unable to maintain personal hygiene leading to mental and physical discomfort[12].

Healthy coping strategies play an important role in decreasing anxiety. These include physical activity, taking nutritious food and regularly scheduled meals, consuming less caffeine, muscle relaxation exercises such as swimming, yoga, and walking, sharing views with the supportive fellows, listening to music, and positive thinking, which are assumed helpful in coping of any type of anxiety and stress[13].

On the other hand, poor coping mechanisms may lead to unhealthy activities and risky behavior such as smoking, drinking, and lack of exercise[13]. And have been associated with low academic performance[14].

Therefore, the purpose of this has been to explore the effects of load shedding on academic performance and health of students and their coping strategies

### Objectives:

- To assess the impacts of electricity load shedding among students.
- To identify the coping strategies adopted by students

## LITERATURE REVIEW

Load shedding is the interruption of electric power for a certain period because the demand is greater than the supply. Electricity is being widely used to operate common appliances[15]. But a shortage of electricity has a negative impact on achievements and careers[16]. Load shedding in summer is the main culprit for increasing difficulties in studies. Online studies are most affected, student's punctuality and expected results are badly affected[17].

A study reported that hostlers have been more affected and more than fifty percent have no alternate source of energy and suggested that government should decrease the load shedding hours[4]. A study showed an impact on physical health such as sleep disturbance, ineffective learning, unfinished and the slowdown of tasks[18].

Another study presented that load shedding caused 58% sleep deprivation, stress was (73.68%), and studies (73.68%), exams (68.42%), and load shedding were (58%)[19, 20].

Exercise is helpful to reduce anxiety, anger, and depression. In addition, it normalizes pulse and blood pressure[21]. Through physical activity, people and students can keep them physically and mentally energetic and can cope with their stresses[21].

Social interaction proves an effective way of managing stress. The effect of music on anxiety is similar to the results of getting a massage[22]. Electricity load shedding has damaged the basic education system. Many students have left school due to this cause[23]. Various sources are responsible for electricity crisis in Pakistan that not only affect students but all people in all fields. Load shedding is a big barrier to the development of a country[24].

## METHODS AND MATERIALS

**Study design:** A descriptive cross-sectional study was conducted on 384 university students.

**Data collection method:** At first, permission was taken from the concerned university administration and a written consent form was signed by students. A structured questionnaire was explained to them and that was filled by the students. The raw data were analyzed and edited in MS Excel and then entered in SPSS version 16. Frequency and percentage were calculated for

measuring the impact of load shedding and chi-square test was used where it needed. A p-value of less than 0.05 was considered statistically significant.

**Ethical consideration:** Approval of the study was obtained from Liaquat University of Medical & Health Sciences Pakistan. Informed written consent was taken from the participants. The students were informed that they are not compelled to participate in the study and they were free to withdraw from the study even after signing the consent form. Confidentiality was maintained

**Study setting:** This study was carried out on male and female students during campus timings at the University of Sindh Jamshoro. Different teaching departments were approached conveniently to get the responses from students regarding experiences, health, and unhealthy coping strategies at the time of load shedding.

The University is currently working on the act of 1972 delivered for greater sovereignty and demonstration of educators. The development of the present Campus at Jamshoro, about 15 kilometers from Hyderabad on the right bank of River Indus and 150 kilometers from Karachi.<sup>32</sup>

**Inclusion Criteria:**

- Male and Female students. Having age group 19-43 years and those who were willing to participate in the study.

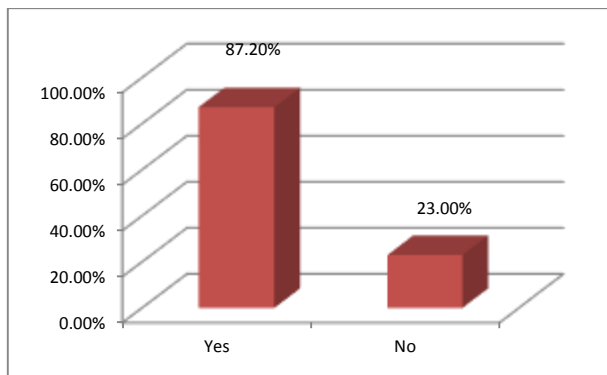
**Exclusion Criteria:**

- Male and Female students under 19 years of age and greater than 43 years of age were excluded. And those who were not willing to participate in the study.

**RESULTS**

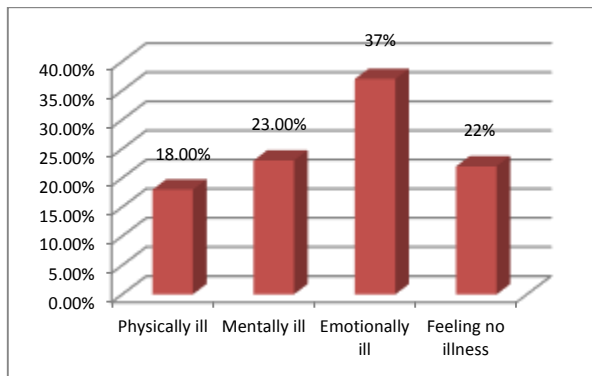
In this study 84.6% students were in age group 19-23 years and 15.4% students were in age group 24-28

Whereas 96.4% students were unmarried and 3.6% were married.



Graph.1: Experience of load shedding

These proportions were significant at p value 0.05.



Graph.2: Feeling of illnesses due to load shedding.

These proportions were not significant at p value 0.13

Table.1: Effects of load shedding

Characteristics (n = 384)	Yes	No	P value
Irritation and perspiration during classes	91.4%	8.6%	0.37
Problems in concentration during lectures	87.2 %	12.8%	0.04
Load shedding affecting punctuality	76.6%	23.4%	0.001
Grades and general results.	142(37%)	32(8.3%)	0.03
Study time	93(24.2%)	30(7.8%)	0.12
Exam preparation	39(10.2%)	22(5.7%)	0.22
Sleep disturbance	77%	23%	0.32
Feeling of anxiety	71.61%	28.39%	0.03

Students' concentration during lectures (87.2 %), punctuality (76.6%) results has been found significant at p value 0.05.

Table.2: Load shedding and coping strategies

Characteristics (n = 384)	Yes	No	P value
Physical activity	26%	74%	0.35
Walked outside	44 %	56%	0.56
Listened to music	63.3%	36.7%	0.001
Interaction with others to relieve anxiety	59%	41%	0.33
Expressed anger	41%	59%	0.54

Load shedding was being coped with physical activities (26%) followed by walking outside (44%) listening to music (63.3%), interactions with others to relieve anxiety (59%), and expression of anger (41%).

**DISCUSSION**

This study has assessed the impacts of load shedding and coping strategies on university students. The mean age of students was 21.7 years ± 2.65. Majority of students were single and adopted different coping strategies. In our study, majority of students have reported an extreme shortage of electricity. Another study with a sample of 320 regular campus university students showed that majority of students faced extreme load shedding. It was very close to the present study findings[4].

In our study, load shedding during nighttime had caused more impact on students' performance and examination preparation, and results had significant differences at 0.05 which is supported by another study which also reported that most of the students were affected during night-time[4, 25]. In present study, most of students experienced load shedding was observed nine hours in 24 mostly in summer season hours badly disturbing studies and daily routine life which shown statistically significant association and P-value was 0.001 using chi-square test. This results are supported by another study[26].

In our study, students commonly felt headache, perspiration, dehydration, irritation, helpless, and restlessness, boring, suffocation, anger and stress. In another study conducted on students of university also reported the anxiety, nervousness, wet hands, increasing pulse rate, and indigestion[27]. In present study, load shedding caused substantial anxiety among students (P = 0.03). Some studies also supported our findings[28]. In this study, students reported problems in concentration during lectures was statistically significant (P = 0.04). Some authors also reported difficulty in maintaining attention[9]. In our study, load shedding greatly disturbed the punctuality (P = 0.001). Another study supported that electricity load shedding has also affected students' study plans[11].

Sleep deprivation and load shedding were found statistically significant (P < 0.05) and supported by another which reported that load shedding as a cause of decreased sleep. The study results were significant and p-value was 0.001. Inadequate sleep due to load shedding had deteriorated students' health, students had to wait long hours for electricity to come to get sleep[19].

In this study, less than half the students reported physical exercise. Another study showed 60% respondents reported physical inactivity[28]. In this study, 44% of students went outside for a walk at the time of load shedding. World Health Organization, it also recommends for adults 75 to 150 minutes of physical activity per week[13].

In our study, more than half the students listened to music on mobile phone, FM radio or MP3 player at the time of load shedding which was healthy coping strategy and is confirmed by other study that music has relaxing effects on mind of people and students with low anxiety[29]. During load shedding students spent their time with other people and interacted with them which also helped them to reduce stress and is supported by studies[13]. But students' also relieved stress by expressing anger, physical violence, which may result in disturbance in studies. Another study showed that violence may lead to unhealthy coping strategies and burst out their stress on others[8].

Students have suggested the government to install more power plants to compensate the electricity shortages. Furthermore WAPDA should remain sincere to their work and 8% recommended of producing light from coal reserves. Whereas in another study, 33% respondents told to produce electricity by using coal resources[17], provision of solar plates would be helpful. Load shedding should be avoided at least during night time[5]. There were some limitations. It was the short time. The sample size was small and a convenient sampling technique was used. Therefore, result cannot be generalized and lack of funding.

## CONCLUSIONS

Majority of university's students suffered from worst load shedding which had badly affected their punctuality, assignments, self-study, competencies, performances, results, and stress and anxiety. They faced physical and emotional problems and controlled them with healthy and unhealthy coping strategies

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