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Impact of Energy Crisis on Subjective Wellbeing: Case Study of a Pakistani Town

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Power cuts have always been a part of everyday life in Pakistan. The problem of power cuts has progressively become unmanageable. Despite serious challenges and threats posed by the current shortfall in the supply of energy, there are only a limited number of studies addressing the economic ramifications of Pakistan's energy crisis, while literature on the psychosocial fallouts of the same is almost non-existent. The present study explored the impact of erratic supply of electricity and gas on the subjective wellbeing of a low income group, and explained the coping strategies these citizens employed to sustain their livelihood. Twenty laborers from Liaquat-abad, a small town in Lahore, Pakistan were interviewed using semi-structured interview guide. Data was analyzed using content analysis. The findings of the study showed that unscheduled and excessive load shedding of electricity and gas inflicted exorbitant costs at macro and micro level. Along with dire economic consequences, power shutdowns adversely impacted workers' quality of life. It was also found that to deal with everyday hassles and stressors caused by the energy outages the laborers employed both positive and negative coping strategies. Adoption of negative coping behaviors was deleterious to their overall wellbeing. The most striking finding of the research, however, was that despite the hardships imposed upon them, these laborers exhibited impressive level of resilience. The findings of the study intend to illustrate gravity of the situation to the concerned authorities and consequently impress upon them the need to boost efforts being made to reduce the present demand-supply gap.

***Keywords**:* Energy Crisis, Economic Crisis, Labouring Class, Subjective Wellbeing, Coping Strategies

Energy and its consumption is fundamental for the economic and social development of a country (Li, Dong, Li, Liang, & Yang, 2011; Weynand, 2007; World Energy Council, 2008). Production, manufacturing and provision of services are heavily dependent on this particular commodity. It is an indispensable component of the present era, significant in determining the quality of life and economic growth experienced by the citizens of a country (Clancy, Alvarez, Maduka, & Lumampao, 2005; Naqvi, 2011). The stable supply of energy has been acknowledged to play a significant role in sustaining livelihoods. It has been found that increased energy consumption spur economic growth (Shahbaz, Zeshan, & Afza, 2012). Similar trends have been found in a longitudinal study in China (Li et al., 2011); the relationship between energy consumption and economic growth examined in 30 provinces of China from 1985-2007 showed that energy consumption and economic growth are interlinked.

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Pakistan has struggled hard to have a stable energy situation since its independence in 1947 (Pakistani Ministry of Finance, 2013). In Pakistan, the state is primarily responsible for the provision of energy. Though the country is well endowed with indigenous energy resources, natural gas, hydroelectricity, and coal; it has not been able to satisfy demand, and the situation has continued to get worse (Kugelman, 2013). The present power crisis is the direct outcome of poor policies and inefficiencies of the concerned authorities, which is seen in the form of a widening gap in the demand and supply of electricity and gas (Khan, Begum, & Sher, 2012; Kugelman, 2013; Naqvi, 2011).

Chronic shortfall in the supply of energy primarily presents itself in the form of load shedding, a practice of disconnecting electricity and gas in some areas to manage demand within the levels of available supply. For the last ten years, the generation capacity has not been able to keep up with the growing electricity requirements (Asif, 2011). The present crisis started in 2006-07 with gradual buildup of a gap between demand and supply. Annual report Pakistan Ministry of Finance (2013) delineates several factors that contribute to the power crisis, including low accumulation of water reserves in dams, failure to set up new power projects to augment supply, and lack of investment in the renewable energy sources. For the last fifty years the country has used a supply of natural gas from

indigenous resources to meet its demands. However, with the passage of time natural gas became a scarce resource. Shortages in the gas sector are experienced due to depletion in existing resources, increase in the consumption of gas as a result of volatile prices of oil, and lack of investment in the exploration and production companies (Pakistan Ministry of Finance, 2013).

Energy shortage has several catastrophic economic, social, and psychological repercussions (Arslan, Zaman, & Malik, 2014). Although energy crisis is not the only factor causing economic despair in Pakistan, its role in exacerbating the already feeble economy cannot be denied. As Masood and Shah (2012) highlights that persistent and unscheduled power shut downs not only disrupt production processes but also increase production cost of manufacturing enterprises and services due to reduced hours of operation and/or investment in expensive alternative power supply system.

Additionally, it hampers the overall maintenance of living standards and deters investments. World Bank's (2010) enterprise survey reveals that 15.6% of firms in 89 countries including Pakistan identified electricity as one of the major obstacles in operating businesses. A survey conducted by Lahore University of Management Sciences in 2003 found that the cost and interrupted supply of power deterred 80% of small and medium enterprises from making investments in Pakistan (Haq, 2005). This lack of investment, and even more importantly the shifting of operations out of Pakistan, has a snowball effect (Masood & Shah, 2012).

Insufficient supply of electricity and gas has far reaching consequences. It negatively impacts all segments of the society; nevertheless, it has worse effects on the laborers due to their inadequate education, skills and resources. It results in low productivity, low quality outputs, and inability to release labor for economic activity. Furthermore, it limits opportunities and capabilities. Long hours of load shedding in conjunction with gas suspension results in increased stagnancy in economic growth, and unfavorably influences the wellbeing of the poor masses (Clancy et al., 2005).

Energy outages are agonizing on emotional and mental level. According to clinical psychologist, Zahra (2013), massive load shedding gravely affects all aspects of life including work, sleep, and health. It is one of the prevailing causes behind sleep disturbance and many psychological ailments. It prevents people from getting sufficient sleep at night; hampers routine activities; and increases working hours subsequently, causing significant distress, discomfort, irritability, and hypertension.

A review of the literature reveals that a number of researches have investigated economic repercussions of energy crisis in different countries but only a handful of them have considered psychosocial fallouts of the same. Despite serious challenges and threats posed by the current shortfall in the supply of energy, little information is available regarding its implications on the livelihood and wellbeing of a low income occupation group. Thereby, this paper explored the impact of energy crisis on the subjective wellbeing of the working class.

There is no single agreed upon definition of subjective wellbeing, and it varies by academic field. Economists define wellbeing in materialistic and quantifiable terms. They generally ascribe wellbeing to greater income, gross domestic product and life expectancy and ignore other important dimensions (Fischer, 2009; Helliwell & Barrington-Leigh, 2010; McBride, 2001). On the other hand, psychologists consider wellbeing as positive mental health comprising of two components: feeling good that includes positive emotions and functioning effectively − having goals in life, having a sense of control, developing one's potential, and having healthy satisfying relationships (Huppert, 2009).

Distinctive feature of the subjective wellbeing is that it provides people an opportunity to evaluate their wellbeing reflecting upon their experiences and circumstances. It gauges individual's perception of his/her experiences. Subjective wellbeing is dependent upon direct personal judgment than reflecting what experts think about what defines a good life making subjectivity its major strength (Helliwell, Layard & Sachs, 2012).

Moreover, coping strategies used by individuals to deal with adversity play a crucial role in enhancing subjective wellbeing as they mitigate threats that cause distress (Feldman, 2011). However, an individual's coping ability depends upon available resources (Davison & Neal, 2003). Social support is considered a significant protective factor that helps cope across a range of risk situations.

Social support is closely related to the concept of social network, or the ties to family, friends, neighbors, colleagues, and significant others. It mainly refers to the individual and group level, while the notion of social integration is a broader phenomenon that operates at community level (Berkman & Glass, 2000). A well-integrated community refers to well developed supportive relationships between people in the community, with everybody feeling accepted and included. Nonetheless, negative coping further the ineffective responses. Examples of negative coping include: inhibition of action, victimization, excessive worrying, and aggressive and destructive behavior (Seaward, 2006).

Gönner et al. (2007) proposed a model to measure Nested Spheres of Poverty (NESP) in which the concept of poverty and wellbeing is used interchangeably. Poverty is seen as "lack of wellbeing" and wellbeing as "reduced poverty". NESP model thereby can also be considered a wellbeing model. It offers comprehensive basis for assessing wellbeing in its many dimensions.

NESP model aggregates individual's basic needs, assets and capabilities into three categories. The core includes principle indicators: health, wealth and knowledge that influence subjective wellbeing. It further includes four contextual factors, namely natural, economic, social, and political, as well as structural aspects that influence the core and subjective wellbeing.

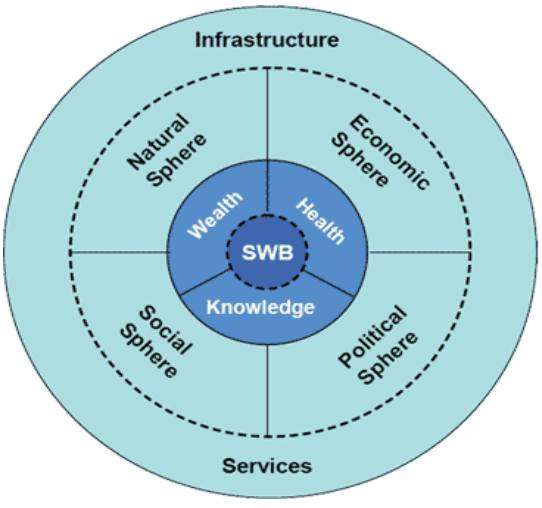

Figure 1. Nested Spheres of Poverty (NESP). Source: Gönner et al. (2007).

According to the model, improvement in the subjective wellbeing results from improvement in the core. Though several dimensions and features of wellbeing are universal but the idea of wellbeing and good life varies across countries and cultures.

Thereby, on the basis of preliminary examination at field site, pilot interviews and focused group discussions with members of poor households, wellbeing was understood in native context i.e., what was wellbeing for them − goals and experiences (having and feeling) that they thought contributed to an one's wellbeing, and resources that they considered necessary to achieve it. Consequently, an indigenous Model of Subjective Wellbeing (MSW) was developed in accordance to the local perceptions regarding the determinants of wellbeing.

Since subjective wellbeing is a state of mind and being which is based on personal evaluation, the framework of the present study reflects how residents of Liaquat-abad define 'wellbeing' and highlights its dependency upon a range of interrelated factors − economic, social, psychological and political − that provide the resources and context for the generation and maintenance of subjective wellbeing.

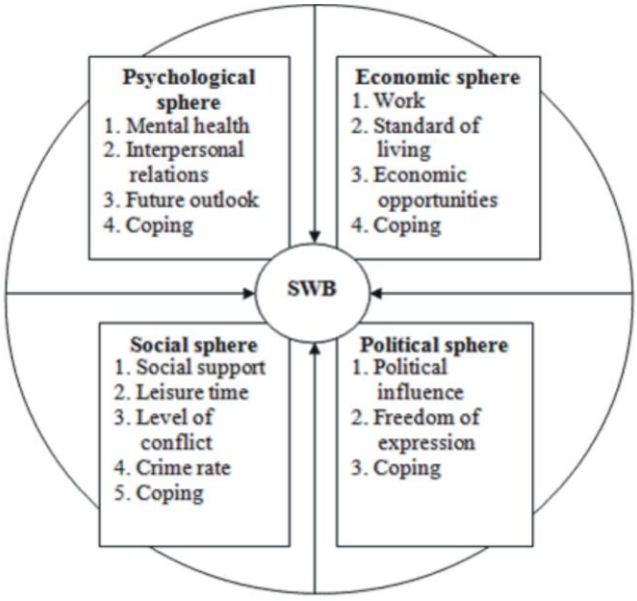

Figure 2. Model of Subjective Wellbeing. Source: Author

Method

Qualitative research design was used in the present study. It was better suited as it provided insight into people's experience of the phenomenon under investigation situated and embedded in local contexts. The fieldwork was undertaken at Liaquat-abad, located near M.A.O College in Lahore. Laboring class residing in Liaquat-abad fulfilled the criteria of the study i.e. low income occupation group. Twenty laborers were recruited for in-depth interview through purposive sampling; with a proportion of sixteen males and four females.

The present study was exploratory in nature. It created a space for self-evaluation where people explained how their wellbeing was affected by energy shortages, what their experiences were, how satisfied they were with their circumstances, and how they coped with it.

The study was conducted in two phases. In phase I, pilot study was conducted. The first few weeks were spent in the field informally talking to the laborers – rapport building. Field notes were made on regular basis. In addition, key informant was identified, and an interview protocol was prepared to explore how various aspects of their lives namely, economic, psychological, social, and political, were affected by energy shortages. However, before the finalization of the interview guide, interview questions were piloted on the basis of which several questions were rephrased, some overlapping and related questions were merged, and some new questions were added.

In phase II, semi-structured interviews were conducted from twenty laborers. It included questions such as whether their earning, working hours, sleep, health, daily routine, leisure time, and interpersonal relationships were affected by the erratic load shedding of electricity and gas. Additionally, they were asked about the strategies they used to cope with problems caused by energy shortages, and its effect on their life.

Interviews were conducted face-to-face and lasted approximately 30−35 min. All interviews were recorded and transcribed. Complete nature of the research and purpose was explained to the respondents. Only verbal consent was taken from the interviewees because most of them were illiterate; they felt uncomfortable and showed reluctance towards signing a written document. Representativeness of more vulnerable groups such as women was ensured.

The data was analyzed using content analysis that helps distil words into related categories (Smith, 2008). This type of analysis was appropriate as it allowed detailed description and quantification of data.

Results

The mean age of the participants was 41.70 (*SD* = 8.54; age range = 32–60). Five out of twenty participants were illiterate while the remaining fifteen hardly completed high school i.e. grade ten. The sample consisted of both semi-skilled and unskilled laborers working as factory workers, tailors, craftsmen, *rickshaw* drivers, sweeper etc. Their mean family size was six.

Content Analysis

Content analysis involves coding open-ended responses into closed ended categories which helps summarize and systematize data (Smith, 2008). The categories and sub-categories were derived from the conceptual framework of the present study (top-down approach). Each category was written up as consecutive prose as presented in the tables below:

Table 1 demonstrates that laboring class has suffered economically due to energy crisis. Laborers whose work is dependent on electricity and/or gas have seen their earnings dwindle. On the one hand, the poor laboring class has to face the consequences of diminished productive working hours that cause workers to put in overtime – for which they are not paid for – in order to get their job done. On the other hand, businesses suffer cancellation of orders due to a lack of timely delivery, making even less amount of work available for the laboring class. It further deters business investments and reduces economic opportunities. However, the work of the laborers working in the informal sector such as a sweeper is not directly affected as it is independent of

electricity/gas. But since the work and earnings of majority of the respondents are affected, it forces more members of the household to seek employment in order to try and make ends meet. At times, even forces these laborers to take on multiple jobs. It has reduced work leading to underemployment and workers being laid off. Hence, a lack of employment certainty is experienced, "*As more and more workers are being laid off I constantly worry about losing my job*" (R5). Moreover, excessive load shedding compounded with subsequent high rates of underemployment adversely affected their standard of living.

To cope with economic distress caused by energy outages, the workers have reduced their household budget, cut down their diet (nutrient intake), clothing expenditures, health care (neglected health problems and postponed treatment), and recreation.

Table 1
Content Analysis of Laborers Responses in Economic Sphere (N=20)

Pre-ordained Categories	Pre-ordained Sub-categories	Frequency of Common Codes
Economic	Earning	Decreased (x19)
		Unaffected (x1)
	Working hours	Increased (x7)
		Decreased (x12)
		Unaffected (x1)
	Other sources of income	Other members of family are working (x15)
		None (x5)
		Doing two jobs (x2)
	Standard of living	Declined (x20)
	Economic opportunities	Decreased (x20)
	Vulnerability	More vulnerable:
		Laboring class & blue collar workers (x19)
		Traders (x1)
		Less vulnerable:
		Rich & white collar workers (x18)
		Retailers (x2)
	Coping	Cut down budget (x20)
		Compromised children's education (x15)
		Doing more than one job (x2)
		Use manual machines (x3)

Table 2
Content Analysis of Laborers Responses in Psychological Sphere (N=20)

Pre-ordained Categories	Pre-ordained Sub-categories	Frequency of Common Codes
Psychological	Health	Affected (x20)
	Social relationships	Strained (x20)
		– Money factor (x13)
		– Time factor (x7)
	Future outlook	Optimism (x12)
		Pessimism (x8)
	Coping	Excessive worrying (x8)
		Found consolation in religion (x12)
		Displacement of anger (x4)

Table 2 shows, due to serious economic consequences of the energy crisis, mental health of the working class is affected as they worry excessively about the present and the very uncertain future. The severity of psychological distress depends upon the situation and how one perceives it. Everyday hassles have the potential to introduce mental turmoil. Blackouts bring work to a standstill, "*life comes to a dead stop*" (R9) since majority of domestic and industrial implements run on electricity/gas hampering activities in all spheres of life. It also infuses perceived loss of control over one's life, "*Because of massive load shedding life has become robotic. Instead of doing work according to our own will and priority we've to follow the electricity schedule and do chores accordingly*" (R11). The intensity of mental distress experienced due to energy cuts is evident in the following narrative,

When light goes out my children can't sleep because of the high temperature and mosquito bites. I use a hand fan so that my children can get some sleep. I spend my entire day out working to make sure my kids are fed. And at night I can't even get a good night's sleep! (R9)

To balance out the work loss caused by lengthy power outages

laborers are forced to increase their working hours, subsequently cutting into quality family time, "*After coming back from entire day's labor, I'm so tired, I hardly get to spend any time with my family* " (R17). In addition, monetary constraints force them to limit their social interactions; they are unable to visit their relatives/friends often that further contribute to the problem.

But, despite these adverse circumstances some of the respondents are hopeful about the future. They stress that their faith in God helps keep their optimism alive, finding hope and consolation in religion, and encourages them to endure their hardships with patience. Nonetheless, prolonged suspension of energy causes irritability, frustration and leads to easy target displacement. Some of the participants reported being frustrated and displacing their anger onto their children. One of the respondents asserted, "*Regular power outage gets one all annoyed so much so that he/she ends up losing temper on small things or scolding children on trivial matters!"* (R9)

Table 3 indicates, social fallouts are another manifestation of the consequences of the energy crisis. Continuous and unrelenting energy crisis greatly lowers the tolerance threshold of the masses, leading to exasperation, annoyance and frustration, "*One gets agitated and engages in pointless squabbles*" (R1). This tendency combined with financial constrains strains spousal relationships and fuels disputes within family. Additional disputes are based on the consumption of shared resources and bills.

Moreover, it causes discomfort, and affects leisure as the participants do not have the time or money to involve themselves in any form of recreational activities. All of the respondents observe an increase in the crime rate and attribute this change to the economic slowdown. They were of the view that some people indulge in anti-social activities in order to combat their boredom and frustration. They commit petty crimes such as, theft, robbery, street crimes for thrill, to fulfill their desires or alleviate their sense of desperation. Additionally, they witness a decline in social support as everyone is too troubled and occupied with his/her own problems to offer a helping hand to other. Likewise, several other problems have emerged: an increase in the utility bills of electricity and gas, and price hike of domestic and other commodities, which subsequently lower the purchasing power, and cause social unrest.

To cope with the various social fallouts of power crisis, the laborers have adjusted their routine according to the schedule of load shedding, and adopted a less energy intensive lifestyle. They assuage their anger by sitting together and ventilating their emotions by criticizing the government for its inaction.

Table 3
Content Analysis of Laborers Responses in Social Sphere (N=20)

Pre-ordained Categories	Pre-ordained Sub-categories	Frequency of Common Codes
Social	Conflict	Increased (x18)
		Not related (x2)
	Leisure time	Affected (x19)
		Unaffected (x1)
	Crime rate	Increased (x20)
	Social support	Declined (x20)
	Other problems	Increased utility bills (x20)
		Inflation (x20)
		Expenditures have increased (x20)
		Can't complete household chores on time (x4)
		Water supply is cut off during blackout (x13)
		Low Tolerance level (x8)
	Coping	Adapted lifestyle accordingly (x6)
		Adopted less energy intensive lifestyle (x6)
		Share problems with each other (catharsis) (x12)

Table 4
Content Analysis of Laborers Responses on Political Sphere (N=20)

Pre-ordained Categories	Pre-ordained Sub-categories	Frequency of Common Codes
Political	Political influence	No political influence (x20)
	Freedom of expression	Limited freedom of expression (x20)
	Coping	Registered complaints (x13)
		Launched a protest (x8)
		Stopped making effort (adopted a passive attitude) (x8)

Table 4 shows laboring class has little freedom of expression and face harassment at the hands of the police when they try to fight for their rights. There is no organized body in the area to represent the laborers and advocate their problems to the concerned authority. To get their voice heard they register complaints and launch protests but these actions fail to elicit a positive response from the concerned authorities. As illustrated in an anecdote shared by one of the respondents,

"*Last year when we (residents of Liaquat-abad) went to Water and Power Development Authority's (WAPDA) office to complain about the load shedding and excessive bills we were greeted with a negative response. They closed their doors when we went. None of*

their higher official came out to talk to us. They called the police who harassed the men and women" (R2).

This attitude discourages people to continue fighting for their rights. Some of them have stopped making efforts and adopted a passive attitude; they refuse to take any counteractions. Therefore, despite increased load shedding of electricity and gas the following year 2013, they did not launch a protest against it. The realization that they are disempowered inculcates feeling of helplessness and creates frustration which negatively affects their subjective wellbeing.

Discussion

The present study was conducted to provide an insight into the impact of energy crisis on the subjective wellbeing of the laboring class. Those within the umbrella of the low income bracket rely for employment on such enterprises that are dependent – directly or indirectly – on the availability of energy. Erratic supply of electricity and gas is identified by the respondents as an adverse contributor to their efficiency and wellbeing.

Due to excessive energy outages the laborers are faced with significant exploitation. Most of them are forced to put in overtime to make up for the work loss caused by load shedding without being paid additional wages. Additionally, power outages significantly impact the quality of workers' life. Several aspects namely sleep, health, recreation, and interpersonal relationships are seriously affected (Arslan, Zaman, & Malik, 2014). Lengthy load shedding of electricity especially during the blistering summer months makes it impossible to sleep which subsequently affects work performance. During the rolling blackouts life comes to a standstill. It causes discomfort, psychological distress, and diminishes the already limited available recreational activities. Moreover, to make up for the loss in productivity due to power outages laborers have to increase their working hours subsequently cutting the quality time they spent with their family.

Furthermore, energy outages temporarily delay work which creates frustration. According to Miller (1941) frustration arises from obstructing individual's effort to attain his/her goal. It has internal and external causes. External causes involve conditions that are beyond one's control such as suspension of electricity and gas considered in the study. Respondents express frustration with irregular supply and high tariffs: despite energy outages they have to pay substantial monthly bills. External causes of frustration further lead to the feeling of powerlessness and anger; each thwarting summates prior frustrations that enhance aggressive reactions. Frustration and anger of the laborers was manifested in the form of violent protest launched against excessive load shedding and disproportionately high utility bills.

Persistent energy crisis is observed to be more detrimental for female laborers as compared to their male counterparts. It further disempowers women and reduces work opportunities for them. The findings of the present study are consistent with La Cava et al. (2006) who suggest that in time of crises women workers are in a worse position than men; they are more at risk of being unemployed and being trapped in the informal sector. Although most of the female workers interviewed in the present study are employed in the informal sector whereby their work is not directly affected by energy shortfall, the prolonged power outages present obstacles in their lives since they are expected to fulfill both their household duties and contribute to the household finances. Stable supply of gas and electricity facilitates domestic activities such as cooking, washing, ironing, grinding etc. Load shedding further constrains their lives as they have to wake up early in the morning to get such chores done in a timely manner or bear the brunt of family criticism.

In the absence of energy alternatives and financial support the life of the laboring class has become difficult. Energy shortages result in low productivity and low returns on labor inputs which in turn diminish their purchasing power. To cope with destitution, they are forced to modify their lifestyles in a manner injurious to their subjective wellbeing. In an attempt to acclimatize themselves to these hardships they have limited their household expenditures, compromised on nutrient intake, neglected their health, cut back on social gatherings, and given up recreation almost altogether. Similarly, other studies have found that poor households in times of crises reduce their food consumption and health related expenses (Hossain, 2009; Sothath & Sophal, 2010).

One important finding of the research is that despite constantly battling adversity laboring class exhibit immense reserves of resilience. Their religious beliefs seem to bestow upon them the strength to endure hardship with forbearance, positively contributing to their subjective wellbeing. Several scholars and researchers highlight psychological roles served by religion in the society – be they positive or negative. On one hand, Marios Begzos, Greek intellectual and a professor of Theology assert that in times of distress religion offers hope and spiritual consolidation (Haci, 2012).

The respondents have a strong social support system that serves as a buffer against privation and ensures their subjective wellbeing. Support provided by neighbors, relatives and friends in the form of finance and social assistance helps the working class endure hardship. Studies have highlighted the significance of social support across a range of risk situations. It helps individuals deal with stress through provision of social, emotional and instrumental support (Berkman, 1995; Ozbay, 2007).

Conclusion

It is evident that energy crisis adversely affects all spheres of subjective wellbeing. Stable supply of energy is acknowledged by the respondents as vital for economic sustainability, productivity and wellbeing. Irregular supply of energy escalates the cost of living and makes life difficult for the low income occupation group. Additionally, along with having dire economic implications energy crisis has several psychosocial ramifications – it affects quality of life and standards which in turn causes distress, uncertainty, and frustration. Erratic supply of energy makes women more vulnerable and their life tougher. Furthermore, some of the coping strategies adopted by the laborers negatively affect their subjective wellbeing. Although energy shortages impose harsh challenges on the living conditions of the laboring class, apparently, the existence of a strong social support system and religiosity constitute two important factors that help them endure and cope, thereby positively contributing to their subjective wellbeing.

Limitations and Suggestions

The sample size was small due to time constraint. Future work in this area should extend these findings. Research on large scale should be replicated with other socioeconomic groups to explore impact of the energy crisis on their subjective wellbeing.

Recommendations

The issue of energy crisis is not going to resolve on its own, and load shedding is not the solution. The government needs to understand the gravity of the situation and address it. New policies and sincere efforts are needed on the part of the concerned authority to meet the energy demands of the masses.

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