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Load shedding and mental health in South Africa: Methodological challenges of establishing causal links

Significance:

We critically interrogate assertions that load shedding has a deleterious impact on mental health and explore the methodological challenges of establishing causal links empirically. We highlight the lack of empirical data to support a causal link and the problem of conflating psychological distress with psychopathology. In addition, we set out the methodological problems associated with collecting data to show that load shedding impacts the prevalence of mental disorders. While it may make superficial strategic sense for activists to link load shedding to mental health as a political strategy to raise awareness, this approach could have long-term negative consequences.

Load shedding in South Africa has undoubtedly resulted in social and economic disruptions and made people's lives more complicated, but it is not clear whether load shedding has resulted in significant changes in rates of mental illness. Claims have been made in the media that load shedding has had a marked deleterious impact on people's mental health, although the evidence offered in support of these claims is far from rigorous. In this Commentary, we critically interrogate assertions that load shedding has led to an increase in the prevalence of mental disorders and the data that have been offered to support these claims. We discuss the ideological and methodological challenges of trying to collect the data needed to prove such assertions. We highlight how linking mental health to load shedding might further political ends (such as normalising mental illness), while also arguing that claiming such links in the absence of sound empirical data can also have unintended harmful consequences, including misleading the public and trivialising serious mental illness.

Claims that load shedding adversely affects mental health

There have been several recent media reports about the impact of load shedding on mental health. The *Financial Mail*, in an article entitled 'By the numbers: What load-shedding does to your mental health' (12 March 2023), published the bold claim that "…long-term projected feelings of hopelessness are having a negative impact on people's mental health"[1]. Under the sensational headline 'Load shedding leading to anxiety and depression which can be fatal, say psychologists', *The Citizen* (23 February 2023) stated that "load shedding can even affect those who never had mental issues before"[2]. *The Daily Maverick* (6 July 2022) reported: "Load shedding is adding to the anxiety, depression and mental health toll among South Africans," adding that load shedding is "causing a wave of stress and anxiety which, for many, could lead to depression"[3]. Similar headlines include 'Load-shedding bound to lead to depression and anxiety, says psychologist' (*Times Live*, 16 January 2023)[4], 'Anxiety and stress exacerbated by load shedding' (IOL, 19 January 2023)[5], and 'Negative impact of rolling blackouts on mental health' (*SABC News*, 7 March 2023)[6].

These media reports share three distinctive characteristics, which we discuss in more detail below. First, they use rhetoric to construct a crisis narrative. Second, they lack sound empirical evidence to support claims about deteriorating mental health outcomes due to load shedding. Third, they conflate psychological distress with psychopathology.

Crisis narratives

Crisis narratives are stories which construct events as disastrous and call people to action in order to avert almost certain devastation. Crisis narratives are part of a dystopian genre and can be found in some accounts of climate change and environmental threats[7], infectious disease epidemics[8], child hunger[9], and other public health emergencies[10-13]. Crisis narratives function to frame collective understandings of risks, warnings, and possible harms, thus potentially mobilising society into action to 'combat' the 'foe'.[10] Crisis narratives may have important positive consequences. For example, they may create cohesion among of group of people who come together to avert the crisis. These narratives may, however, also be divisive in that they can set up an 'us versus them' dialectic which can be unhelpful in that those 'in the know' are presented as experts while alternative views of others are dismissed.[13] At their worst, crisis narratives sow panic and create confusion through the use of hyperbolic rhetoric and the distortion of evidence to fit a particular narrative for political purposes.[11]

Media reports of the psychological impact of load shedding seldom talk about resilience, adaptation, and creativity. Instead, they use the language of psychiatric disease (depression and anxiety) and words like "fatal" *(The Citizen)*[2] and "toll" (*The Daily Maverick*)[3] which imply that load shedding will lead to mental health casualties, while also framing mental illness as an inevitable and certain consequence of load shedding (*Times Live*)[4]. Crucially, some reports distort the available evidence to fit their account of a crisis by overreaching on what can be concluded from empirical data, as we discuss below. Even more worrying is the potential conflation of something which is clearly disruptive and bad for society (i.e. load shedding) with a mental health crisis. At worst, if one of the bases on which we claim load shedding is bad is that of poor mental health, then some may assume that if mental health outcomes are not rigorously shown to be poor, this makes load shedding less serious, which is not the case. Constructing

a crisis narrative about load shedding and mental health may appear to be a useful short-term political strategy for mental health activism, but in the long run it could backfire if empirical data do not support the claims.

Lack of sound empirical evidence

Typically, media reports justify their claims that load shedding negatively impacts mental health either by quoting experts (usually psychologists or psychiatrists) who speculate from a position of authority without offering any empirical evidence, or by quoting data from a cross-sectional survey conducted by the South African Depression and Anxiety Group (SADAG).

The mental health experts quoted in media reports use, it appears, common-sense reasoning to argue that depression and anxiety are precipitated by uncomfortable emotions that accompany load shedding, including feelings of impotence, uncertainty, loss of control, frustration, anger, and fear about crime. From the way they are presented in media reports, it seems as if the experts assume as a self-evident 'fact' that load shedding causes a significant number of people to have uncomfortable feelings and that people are likely to be unable to regulate or tolerate these uncomfortable emotions without developing a depressive or anxiety disorder. By appealing to the authority of experts, the media reports frame the human psyche as fragile and position people as highly susceptible to emotional discomfort, while discrediting South Africans' capacity to adapt to adverse circumstances. It is notable that reports quoting experts start with the axiomatic statement that load shedding is difficult and precipitates uncomfortable feelings such as powerlessness and anger. But then the reports slip into asserting that uncomfortable feelings will naturally lead to psychopathology (i.e. mood and anxiety disorders). In slipping between these two ideas, the reports use a logical fallacy and conflate psychological distress with psychological disorders (a theme we return to later). It is important to stress here that the reporting on what experts say may itself be highly selective and sensational – as consumers of such reports we generally do not have access to the full text and context of what experts in fact said. We also do not know how many (if any) experts may have refused to engage with the kinds of questions asked in this kind of reporting.

The second main source of evidence in media reports about load shedding and mental health is survey data collected in early 2023 by SADAG, a South African non-profit organisation established to provide support to people living with mental health problems and to serve as a patient advocacy group.[14] SADAG has several partners, including universities, government departments, drug companies, and for-profit professional mental health services, as listed on their website.[14] According to various news reports and a press release posted on the SADAG website[15], a cross-sectional survey was conducted with a self-selected (i.e. non-probability) sample of 1836 respondents (out of 30 000 "members of the SADAG community" who were invited to complete the survey, i.e. a 6.1% response rate). It is not clear how or what data were collected, but it appears from the press release that a combination of quantitative and qualitative data were collected. The press release on the SADAG website states that "4 in 10 people reported depression, and 62% of people struggled with anxiety and panic." The press release further states that "1 in 10 have contemplated suicide or had thoughts of suicide. …. (and) 31% reported problematic family relationships, and feelings of isolation." The press release includes a description of the strategies that "members of the SADAG community" report using to cope with load shedding. This press release is not intended to be a scientific report and it is unfair to subject it to the usual standards expected of scholarly writing. Nonetheless, the press release has been widely cited and is being used to support a crisis narrative that links load shedding to increasing rates of depression, anxiety and fatal mental health outcomes. As such, we believe we are justified (if not required) as mental health professionals and scientists to interrogate the results of the survey and the basis on which truth claims are made.

There are several serious methodological problems with the survey (as it is reported in the SADAG press release), chief among these is that the survey relies on a non-probability sample drawn from the "SADAG community," uses a cross-sectional research design with self-reported data, and provides no information about the validity or reliability of the survey instrument.

Non-probability samples cannot be used to generalise to the whole population, especially if the sample is drawn from a community that has been set up as a support group for "people living with mental health problems" (and is thus explicitly not representative of all South Africans). Drawing a sample from a particular delineated subset of the population introduces sampling bias, which makes generalising the findings of the survey to the whole population invalid. The very low response rate (6.1%) creates problems even with generalising the survey findings to the SADAG community. To say anything valid and reliable about the prevalence of mental disorders, one would need to draw a large-enough representative sample from the population using random sampling (i.e. attempting to ensure survey respondents are recruited at random from the whole population to ensure that everyone in the country has an equal chance of participating in the survey). The question of the sample size (i.e. what is a big enough sample?) is also important, especially when one is trying to measure phenomena that naturally have a low base rate, as might be the case for severe depressive illnesses.[16,17]

Cross-sectional research designs, like that used in the SADAG survey, can at best identify correlations and associations between variables but cannot be used to infer causality, making it impossible to conclude that load shedding is *the* cause, or even *a* cause, of the depression, anxiety and suicidal thoughts reported by survey respondents. To make any valid inference about causality, at the very least one would require longitudinal data or interrupted time-series data with measures for mental health taken before, during, and after load shedding. Robert Koch, writing in the 19th century in the context of microbiological organisms, originally postulated four criteria necessary to infer that an organism causes a disease, namely: (1) the organism must be found in diseased individuals but not in healthy individuals; (2) the organism must be found in the diseased individual; (3) inoculating a healthy individual with the organism must precipitate the disease; and (4) the organism must be re-isolated from the inoculated diseased individual.[18] Koch's postulates have been the subject of controversy and debate in infectious disease medicine, and have subsequently been revised (even Koch revised his own postulates by eventually dropping the first criterion), but nonetheless have served as an invaluable guide to the discovery of the specific causes of various infectious diseases.[19,20] Importantly, by proposing these criteria, Koch forced medical scientists to think carefully about (and justify) the necessary and sufficient conditions to infer that an agent causes a disease. In psychiatry it is much harder to propose a set of necessary and sufficient conditions for claiming that any mental illness is caused by X.[21] This is so for several reasons, including the multifactorial nature and causes of mental disorders in general, and the obvious question of relating the onset of a disorder to its purported causes. Simply put, for X to cause Y in epidemiological terms, it makes sense that X must predate Y. In psychiatric epidemiology in general, researchers are often dealing with disorders of slow or unclear onset – one does not move from being asymptomatic one day to having a clear case of a disorder the next, and prodromes for disorders may be diffuse and difficult to assess. In the case of the SADAG study, if it is the case that the participant pool were people already experiencing symptoms of anxiety and depression, for example, and then experienced a subjective exacerbation of symptoms during load shedding, one cannot conclude that load shedding caused the anxiety and depression. A further difficulty with cross-sectional research of this kind is that of recall bias – it is not unusual for people experiencing difficulties to attribute these to proximal stressful events which may, in fact, have post-dated the difficulties.

Finally, without any information about the reliability and validity of the survey instrument used in the SADAG study, one cannot even be sure that the survey assesses depressive or anxiety disorders. Diagnosing mental disorders is a specialised task that psychologists and psychiatrists spend years learning and requires more than counting the number of symptoms a person reports or asking someone if they are depressed. Screening instruments can be used to identify people who are likely to meet diagnostic criteria for a mental disorder, but before any screening instrument can be used in a survey it needs to be carefully validated to ensure that it is both reliable and valid.[22] Screening instruments usually consist of a list of symptoms which a respondent is asked to endorse, thus yielding a symptom count. Researchers who use screening instruments determine a cut-off point (i.e. a symptom score) that

differentiates respondents who are likely to meet diagnostic criteria for a disorder from those who are not. This cut-off point must be statistically established for a particular population, along with the sensitivity and specificity of the instrument.[22] Of course, it is possible that the SADAG study used reliable instruments that have been validated for their survey population (i.e. "the SADAG community"), but without knowing this information we cannot assess the accuracy of any prevalence rates quoted for depression or anxiety disorders.

Indeed, it is possible that SADAG attended to most or even all the concerns we have raised above, but in the absence of clear reporting of methods used, it is a mistake to rely on the findings to generalise about load shedding causing mental health problems in South Africa. Just as the science community should not rely on media reports for information on the seriousness of climate change, full and informed reporting of methods is necessary for assessment of the accuracy of claims made in relation to mental health issues.

Conflating psychological distress and psychopathology

Media reports about load shedding and mental health (and indeed the SADAG research) seem to conflate psychological distress with psychopathology. Psychological distress is a transient state of emotional discomfort and is a common reaction to the day-to-day vicissitudes of life.[23] It is normal to feel psychological distress and it is unrealistic to expect that we will never experience hardship, struggle, or uncomfortable feelings. Psychological distress does not require treatment from a mental health professional and usually resolves with time and appropriate support from family and friends. By comparison, psychopathology (i.e. mental disorders) are severe persistent disturbances of thinking and feeling, which cause marked impairments in social, interpersonal and occupational functioning.[24] Many mental disorders require treatment by a mental health professional and are considered to be serious mind-brain illnesses. Of course, mental illness cannot be understood as a binary phenomenon and there is a growing trend in psychiatry towards understanding psychological functioning on a dynamic continuum; as such it is not always easy to draw a line between psychological distress and psychopathology. However, if we use these constructs interchangeably (as appears to be the case in media reports and the SADAG study on loadshedding and mental health), we run the risk of trivialising serious mental illnesses which are debilitating by conflating them with the uncomfortable feelings of everyday struggles. In part, the problem here is that the term 'mental health' is increasingly being used as an elastic construct and as a catch-all phrase to denote everything from severe serious mental illness to normal responses to stressful situations. Using the discourse of 'mental health' is a political act which can help to normalise and destigmatise mental illness. But the discourse of 'mental health'" (which does not differentiate between psychological distress and mental disorders) can trivialise severe mental illness and obscure the needs of people with severe debilitating mind-brain illnesses.

Load shedding probably causes psychological distress and discomfort for many people, and may even make some people angry, irritable, and uncertain some of the time. And load shedding may present challenges for people with pre-existing mental health conditions. But having feelings about load-shedding (even strong feelings) does not mean that one has a mental disorder or that one requires psychiatric treatment, as some media reports and the SADAG press release seem to imply. This is not to say that it is impossible that some South Africans without pre-existing mental health vulnerabilities could experience severe, clinical levels of anxiety or distress due to load shedding (for example, those who depend on regular power supply to run life-saving home medical equipment, those who are at significantly increased risk of victimisation during load shedding, or those living in communities where power outages last several days at a time). It is easy for the implicit conflation between psychological distress and psychopathology in the SADAG press release to slip past unnoticed because of the growing trend towards using psychiatric speak (i.e. terms like depression, anxiety, panic attack) in everyday situations to describe everyday experiences. Even if there is a continuum between everyday distress and psychopathology, different points on the continuum have different meanings and, crucially, different implications for services. Psychiatrisation, is part of a larger growing tendency in contemporary society to medicalise everyday life by turning the daily problems of living into illnesses that require treatment from a medical professional.[25,26] Psychiatrisation leads to over-diagnosis and over-treatment of mental disorders, and reflects the expansion of psychiatry's reach into everyday life and the growth of the medical-industrial complex.[27]

Conclusion

It is important and helpful to raise awareness of mental disorders, to challenge stigma by normalising people's experience of living with a mental illness, and to promote access to treatment and support services for people who are struggling, as SADAG and others are committed to doing. A possible unintended consequence of mental health activism, however, may be the conflation of psychological distress with psychopathology or using inappropriate data to further a political cause, however just this larger cause may be. Load shedding is a serious issue, likely to have far-reaching consequences for South Africa. Similarly, it is well established from sound research that resources for appropriate evidence-based mental health interventions are not sufficient in South Africa[28], nor further afield[29,30]. It may make superficial strategic sense for activists to link the topic of load shedding to mental illness through the (re)production of a crisis narrative as a political strategy to raise awareness, reduce stigma and mobilise resources. But, at this stage, there are not robust data available to make such links, and falsely asserting that there are, could undermine the credibility of mental health activists in the long run, especially if the data are subsequently shown not to support the activists' claims. If data linking load shedding and mental health are collected and fully reported scientifically, these results will be important for mental health resource planning. The current state of evidence suggests, however, that arguments about load shedding as a factor in the development of mental disorders are premature. Clearly, more, and better, research is needed.

Competing interests

We have no competing interests to declare.

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