



Original Article

Six Monthly Mortality analysis 2023 of Benazir Bhutto Hospital Rawalpindi

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ABSTRACT

Mortality and morbidity being healthcare indicators of any country need deliberation by the strategic planners for attaining the equal right for health by all people. Only this will enable any nation to have prompt well-being and hence achieve Sustainable Development Goals (SDGs) by 2030. **Objective:** To determine age, gender and department-wise mortality of Pakistani population by 6-monthly mortality analysis of a healthcare facility. **Methods:** A retrospective hospital record-based study was carried out by retrieving mortality data from February – July 2023 from administration of Benazir Bhutto Hospital (BBH), Rawalpindi through informed consent. Data were gathered pertaining to age, gender of expired cases in addition to department-wise mortality. Data were analyzed by using MS Excel 2016 and descriptive statistics were applied. **Results:** Of the total 2232 deaths during February–July 2023 at BBH, majority 1225 (55%) were males. Maximum (9%) deaths were reported during May 2023 with greatest male deaths (232). Deaths from the Pediatrics department were the greatest (60.9%) with 58% of them measured among up to 5 years old children and more than 90% of them succumbed to septic shock. About 18.6% and 11% mortalities were identified from Medicine and Emergency departments respectively. **Conclusions:** Neonatal, infant and children's deaths were maximally reported due to septic shock. More deaths were also determined among medical and emergency cases.

INTRODUCTION

Death rate of Pakistan during 2023 is reported to be 6.74 by United Nations [1]. Deaths rates of a nation made us to ponder the 3rd Sustainable Development Goal (SDG) that has 13 targets to ensure health and well-being among individuals of all ages [2]. Total 28 indicators have been specified to measure the progress towards achievement of given targets [3]. Target 3.1 and 3.2 are specifically meant to lessen maternal, neonatal and child mortality; hence envisioned to improve the health status of a nation [4]. A comprehensive health report 2020-2021 by World Health Organization (WHO) is illustrative of substantial health related achievements worldwide despite the COVID-19 pandemic [5]. Maternal mortality ratio undoubtedly declined by one third during 2000 and 2015 while working on

Millennium Development Goals (MDGs), strenuous efforts are still needed to work on SDGs for reduction of maternal mortality ratio to below 70 maternal deaths per 100,000 live births by 2030 [6]. SDGs are to be attained by all countries till 2030. Although Pakistan was not among the ten countries identified with highest maternal mortality ratio during 2017 [7]. No doubt, under-5 mortality in Pakistan has drastically decline from 139.8 to 63.3 per 1000 live births during the last 30 years [8], it is still higher than all WHO regions except that of Africa with 72 deaths per 1000 live births [9]. The key etiologies of mortality and morbidity have been attributed to the sex of individuals. Almost same proportion of COVID-19 cases were reported among males and females belonging to China and United States amidst

COVID-19 pandemic [10]. On the other hand, data from 6 European countries reflected higher mortality rate among males [11]. According to World Bank data of 2023, life expectancy among males and females of Pakistan is reported to be 63.8 and 68.6 years respectively that is also illustrative of high fatalities in male population [12]. Mortality and morbidity related data sets are compiled annually of various WHO regions of the world in order to get an idea of estimated age, gender and zone based leading causes of deaths and disability measures to have healthcare-wise glimpses of various countries [13].

The present study was also planned with an intention to measure age, gender and department-wise mortality from a tertiary care public sector facility by analyzing the real-time 6 monthly data. This study would enable the strategic planners to take necessary actions for mitigating the grave healthcare consequences and hence reflecting the better picture of Pakistan with respect to healthcare services in long run.

METHODS

A retrospective hospital record-based study of 6 months period (February-July 2023) was carried out by retrieving mortality data from administration of Benazir Bhutto Hospital (BBH), Rawalpindi through informed consent. Data completely recorded with respect to age, gender of expired cases in addition to department-wise mortality was included while data of the months found incomplete were excluded from the study. Data were analyzed by using MS Excel-2016 and descriptive statistics were applied. Month-wise mortality trend was also drawn.

RESULTS

Of the total 2232 deaths reported at BBH from February to July 2023, 1225 (55%) and 1007 (45%) were males and females respectively. Month-wise mortality is shown below in Figure 1 with greatest proportion reported during May 2023.

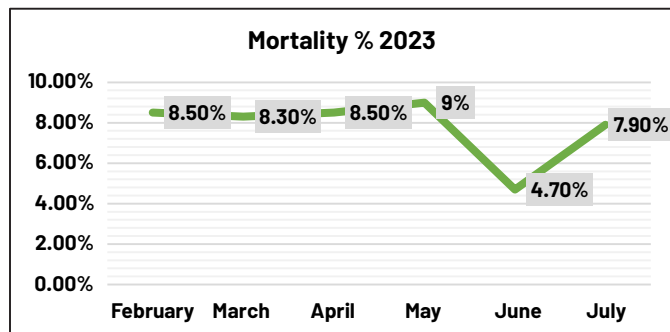


Figure 1: Month-wise Mortality 2023 at Benazir Bhutto Hospital
Gender-wise mortality data of each month are depicted below in Figure 2 that reveals maximum male and female deaths during May and June 2023 respectively.

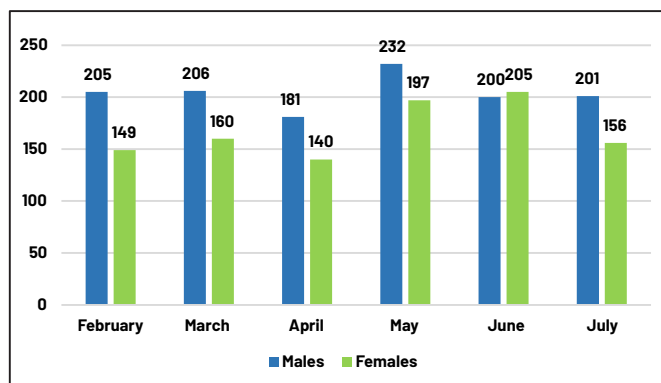


Figure 2: Gender-based mortality from Feb-July 2023
Most of the mortalities were from Pediatrics department followed by medical and emergency departments of BBH as revealed below in Figure 3.

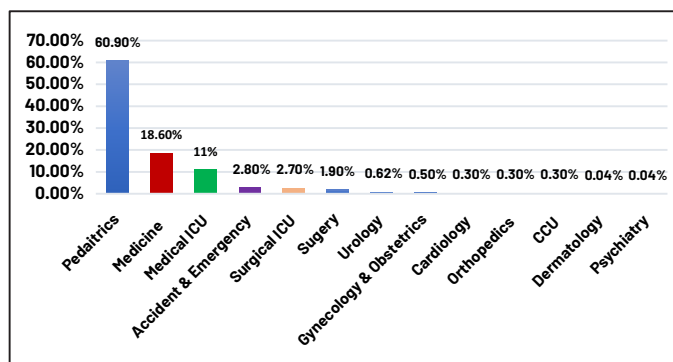


Figure 3: Department-wise mortality data (Feb-Sep 2023)
The greatest proportion of mortality was reported in up to 5 years age group as depicted below in Figure 4.

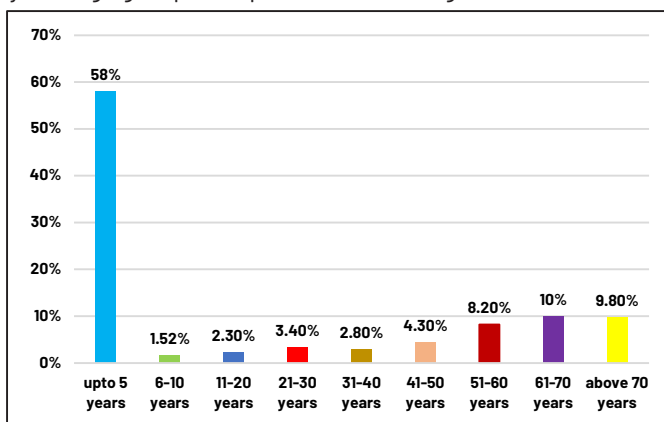


Figure 4: Age-wise mortality data

DISCUSSION

On analyzing the gender-based mortality of 6 monthly mortality data of a public sector hospital in current study, the highest proportion of mortality (55%) was among males. The results of 12 cohort studies carried out among people of 28 countries also illustrated the 60% greater risk of mortality

among males than those of females even with adjustment for age [14]. Likewise, severity of COVID-19 infection and resultant fatalities were remarkable among males than those of females [15]. Similarly, extensive COVID-19 adult patients-based data analysis revealed not only longer hospital stay among males but also verified greater mortality among males [16]. According to a study by Jacobsen et al., immunity to viral infections has also been attributed to gender variations and contrary to other studies females have been identified as more prone to viral infections primarily due to characteristics of sex chromosomes and sex steroids [17]. Similarly, females having myocardial infarction coupled with coronary artery disease were determined to have relatively higher risk of death than those of male cases [18]. Sex difference pertaining to mortality should further be studied in association with other contributing factors for divulging the realistic facts to the public. The highest mortality in our study (58%) have been reported among those who were less than and up to 5 years old and more than 90% of neonates succumbed to septic shock that might be secondary to several feto-maternal and socio-economic reasons. A similar study done at Benazir Bhutto Hospital Rawalpindi during 2022 presented the same distressing scenario with escalated infant and neonatal deaths that were associated with sepsis and low birth weight [19]. A study done by Aziz et al., illustrated poorly educated women, undernourished and anemic mothers and preterm deliveries as the key issues for grave neonatal consequences [20]. A multidimensional study carried out in Asian and South African countries proved sepsis, pneumonia, diarrhea and malnourishment as the leading attributes to neonatal mortality [21]. Children are subjected to varied chances of survival depending on their place of birth. Of the total 5 million deaths acknowledged globally in 2021, approximately 80% were those in the regions of Sub-Saharan Africa and South Asia [22]. Although decline in overall neonatal mortality rates has been verified across the globe; still certain regions are confronted with challenging neonatal healthcare indicators [23]. National Health Vision 2016-2025 has been anticipated by Pakistani government for developing the frameworks in alignment with achievement of Sustainable Development Goal-3 by 2023 as timely accomplishment of improved neonatal and child healthcare outcomes seems unattainable [24]. Children with poor health during their neonatal period are prone to have impaired cognitive abilities [25]. Policy framework should be drafted with involvement of all concerned stakeholders on priority basis with an intention to lessen the frequency of shocking healthcare indicators. Apart from 61% deaths registered from pediatrics department in current study, almost 18.6% and 11% mortalities were reported from medical and emergency departments respectively. A multicentric analysis of hospital mortality done among Germany cases

during 2016-2020 after adjustment for age and sex illustrated highest mortality in association with infectious diseases as compared to those from cardiovascular, gastrointestinal or respiratory disorders [26]. Although mortality review committees are notified in tertiary care facilities with an objective to discuss the root causes of in-hospital mortality that might be linked with delay in provision of necessary healthcare to the patients or non-availability of essential life-saving equipment. A retrospective study carried out by Jena et al., elucidated diminished mortality among critically ill cardiac patients during the period of national cardiology meetings, moreover, such patients were least subjected to interventional procedures [27]. Another study revealed 4% in-hospital mortality among adults that did not undergo any surgical intervention; however, more adults succumbed to various respiratory disorders [28]. Likewise, a case-control study illustrated higher in-hospital mortality among sufferers of respiratory problems, yet dementia and cerebrovascular diseases were identified as contributing factors irrespective of age, comorbidity and length of hospital stay [29]. National Early Warning Score has been used by ambulance teams of United Kingdom to facilitate the patients through triage and provision of indispensable services accordingly. Although this scoring system can be of great assistance to critically ill patients; however prospective studies on large cohorts can confirm its significance in declining in-hospital mortality [30]. The triage system has undoubtedly been well-implemented for managing the cases in Accident and Emergency department of our tertiary care hospitals but some of the prevailing weaknesses were staff shortage and unskilled healthcare personnel [31]. Likewise, Mukhtar et al., in a retrospective study concluded that delayed presentation of critically ill cases to hospital in addition to deferred management as prime explanations for in-hospital mortality [32]. Implementation of triage system in departments of hospital confronted with increased patient turnover might prove beneficial in diminishing the mortality rate.

CONCLUSIONS

Healthcare indicators of public sector facilities particularly in the domain of neonatal, infant and child health are quite pitiable that are primarily attributed to sepsis. Medical and emergencies departments also had comparatively increased mortality.

Authors Contribution

Conceptualization: TAR, RS

Methodology: SK, FF

Formal analysis: MU, NZ

Writing-review and editing: TAR, RS, NZ, FF

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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