



Comparison Of Cause- Specific Mortality And Morbidity Of Kazakhstan And Tajikistan

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Introduction:

Kazakhstan and Tajikistan, both nations, have been grappling with communicable and non-communicable diseases. The comparative analysis of cause-specific mortality and morbidity in these two countries is particularly compelling. Since the early 1990s, mortality rates have been notably high, especially in Kazakhstan, where they increased by almost 50% (McKee and Chenet, 2002). Alcohol consumption, smoking, hypertension, high-fat diets, and inadequate diagnostic measures were the primary contributors to ischemic heart disease (Britton, 1998). Cancer was more widespread in Kazakhstan, with significantly higher mortality rates. Environmental diseases, such as lung cancer, respiratory infections, and brain tumors, were more prevalent among populations residing near nuclear testing sites in Kazakhstan and adjacent areas. Following independence, the Central Asian republics experienced marked surges in road accidents, injuries, and violent incidents. The disease patterns suggest that the Central Asian republics underwent an epidemiological transition (Chenet, 2002). Tajikistan was disproportionately affected by acute respiratory infections and diarrheal diseases, which significantly contributed to high infant mortality (IM). Data on morbidity, however, remains scarce due to limited reporting and challenging conditions.

Comparative Analysis:

Since the 1980s, non-communicable diseases have been highly prevalent in Kazakhstan, primarily due to unhealthy behaviors such as diets high in fats and low in antioxidants, alcohol abuse, excessive salt intake, drug use, and heavy smoking. These factors significantly contributed to cardiovascular mortality, particularly among adult males. According to Cockerham and Hinote et al. (2004), 55.6% of males consumed vodka, while only 13.8% regularly consumed fruits. Privatization and liberalization in Kazakhstan facilitated the widespread availability of fatty and unhealthy food items. Additionally, products such as cigarettes, sweets, tea, coffee, and alcohol became readily accessible. The adoption of a high standard of living and excessive consumption of unhealthy food products in urban areas resulted in increased cases of obesity, hypertension, cancer, ischemic heart disease, respiratory diseases, and other cardiovascular conditions. Urban populations consumed fewer fruits, green vegetables, and grains.

Compared to Tajikistan, alcohol consumption and smoking were significantly higher among females in Kazakhstan, which directly or indirectly affected their reproductive health. Central Asia hosts numerous tobacco-related industries, and Kazakhstan had the highest smoking prevalence in the region, with 9.3% of females and 65.3% of males engaging in smoking (HCST: Kazakhstan, 2012). However, tobacco smoking decreased among the general population and health professionals, although smoking prevalence among adolescents remained high. Among individuals aged 13 to 15, smoking rates were notably elevated (HCST: Kazakhstan, 2007). The government had launched many alcohol and smoking related awareness programmes in schools and colleges. During 1990s, IHD, cerebrovascular disease, respiratory disease and cancer had worsened conditions in Kazakhstan (Table No.- 1.9). Incidence of accidents and alcohol related disease were high among ethnic Russian population in Kazakhstan (HCST: Kazakhstan, 1999). Among the Central Asian republics, age-adjusted cancer MR was highest in Kazakhstan especially related to lung and esophageal cancer (HCST: Kazakhstan, 2012). The death rate in Kazakhstan was high because of external causes like poisoning accidents, traumas and injuries (HCST: Kazakhstan, 2012). Age standard MR increased from 118 per 100000 populations in 1991 to 166 by 2001, again decreased to 115 per 100000 populations in 2009 (HCST: Kazakhstan, 2012). In 2005, mortality due to external causes was highest in Kazakhstan then Tajikistan. In the same year mortality due to suicide was 49 per 100000 male populations in Kazakhstan (HCST: Kazakhstan, 2007). Mainly car accidents were caused by over speeding, avoiding seat belts, drunken driving, red light jumping and distractions to driver. In 2003, age- standardized MR for motor vehicle travel accidents among males was 20 per 100000 populations (HCST: Kazakhstan, 2007).

Like other Central Asian republics, diabetes and blood pressure were common diseases in Kazakhstan. Diabetes patients in Kazakhstan were 8.90 per 100000 populations in 1990, 16.11 per 100000 populations in 1995 and decreased by 9.46 per 100000 populations in 2009 (Table No.- 1.9). The main reasons of diabetes were improper diets, more preference of fatty foods, high intake of sugar and others. Kazakhstan had high witnessed epidemics of communicable diseases like TB, STI, syphilis (HCST: Kazakhstan, 2012). The incidence of tuberculosis and HIV/AIDS were extensively discussed in later chapters. Syphilis had increased dramatically in Kazakhstan. It increased from 1.45 per 100000 populations in 1990 to 269.5 per 100000 populations in 1997. It started declining up to 60.9 per 100000 populations in 2005 (HCST: Kazakhstan, 2007). According to Godinho and Novotny et al (2004), syphilis was diagnosed in 2% of hospital patients, 1% of blood donors and 1% of pregnant women. There was an improvement in the incidence rate of hepatitis from 444 per 100000 populations in 1990 to 70 per 100000 populations in 2003 (HCST: Kazakhstan, 2007). According to MoH:

Kazakhstan (2004), Kazakhstan had some natural breeding grounds for epidemic diseases like anthrax (1767 locations), plague (8 oblasts), tick- borne encephalitis (6 oblasts), hemorrhagic fever (4 oblasts) and tularemia (11 oblasts). Food quality was an important issue in Kazakhstan because of low quality domestic and imported food products which lead to invite chronic diseases especially among children and adolescents. As compare to Tajikistan, Kazakhstan was more affected by anthropogenic environmental pollution. The Aral Sea and Semipalatinsk regions of Kazakhstan were the best example where natural environment was highly influenced by radio-active radiation. In the later chapters, these are described in a substantial manner. Poor sanitation and contaminated water were also a major issue which also enhanced water-borne diseases in Kazakhstan. Parasitic disease is an infectious disease transmitted or caused by a parasite. Infectious diseases are caused by parasites, viruses, bacteria and fungi. Some infectious diseases like hepatitis A, B, C and E, pneumonia, animal bites, MDGs, cholera, rubella, measles, influenza, poliomyelitis, malaria, sepsis, Japanese encephalitis, yaws, chikungunya, dengue, taeniasis, trachoma and smallpox were also seen in selected parts of Kazakhstan. Kazakhstan was highly influenced by larynx, trachea, colon, bronchus and lung cancer which has been mentioned in below table (Table No.- 1). Digestion related diseases were high in Kazakhstan then Tajikistan. Diseases related to digestive system were 38.42 per 100000 populations in 1990, 64.59 per 100000 populations in 2005, decreased by 58.04 per 100000 populations in 2009 (Table No.- 1). Breast cancer was more found in Kazakhstan's females- 15.74 per 100000 populations in 1990, 22.18 per 100000 populations, decreased by 19.70 populations in 2009 (Table No.- 1). In Kazakhstan, the biggest decrease in all- cause mortality rate were seen to be prevalent among females aged 1 to 4 years (43%) (<http://www.healthmetricsandevaluation.org>). In 2010, the leading risk reasons for children < 5 and adults aged 15- 49 years were dietary risks and suboptimal breastfeeding in Kazakhstan (<http://www.healthmetricsandevaluation.org>). Malignant neoplasm (cancer), diseases related to respiratory tract and diseases related to CS were the main sources of death in Tajikistan (Table No.- 1). The spread of ARI was due to air pollution, bad living conditions and high population density (HST: Tajikistan, 2010 and 2016). Total mortality was because of diseases of the CS was 480.3 per 100000 population in 1990, 627.9 per 100000 population in 1995, 600.8 per 100000 in 2000, 561 per 100000 in 2005 and 568.9 per 100000 in 2013 (Table No.- 1). However, deaths in Tajikistan due to the CS diseases were less than Kazakhstan. Deaths due to IHD in Tajikistan was 273.9 per 100000 in 1990, 301.5 per 100000 in 1995, 257.0 per 100000 in 2000 and 114.4 per 100000 in 2013; which was also less than Kazakhstan. In both the cases Tajikistan was trying to reduce to deaths. In between 1990 to 2000, deaths due to respiratory diseases were high in Tajikistan then Kazakhstan (Table No.- 1). In both the countries, deaths because of diseases of the digestive system were more or less same in between 1990 to 2015 (Table No.- 1). The ASDR due to external cause, poison and injury was 57.6 per 100000 population in 1990, 79.3 per 100000 population in 1995, 36.4 per 100000 in 2000 and 22.5 per 100000 in 2013, which shows much lower than other Central Asian republics (Table No.- 1). Low degree of motorization and lower level of alcohol consumption in Tajikistan were the major reasons (HST: Tajikistan, 2010).

Cardiovascular diseases were common in Central Asian republics including Kazakhstan and Tajikistan. This was because of lifestyle factors like diet low in antioxidants and high in fat, smoking and alcohol consumption. It also includes poor detection of hypertension (HST: Tajikistan, 2010). Unsafe sexual practices and drug abuse were lead factors for infectious and non-infectious diseases. In Tajikistan deaths due to infectious diseases were 43.5 per 100000 population in 1990, 62.2 per 100000 population in 1995, 35.6 per 100000 population in 2000 and 13.8 per 100000 population in 2013 (Table No.- 1). In the first half of 1990s, deaths due to infectious diseases were higher than Kazakhstan (Table No.- 1). Tuberculosis, HIV/AIDS, sanitation, hygiene, water and environment related issues are discussed in the later chapters in an extensive way. Before independence malaria which had been eradicated in Tajikistan as a mass disease saw a comeback in 1992 (HST: Tajikistan, 2010). By 2002, there were a total of 40,000 cases of malaria, including incidence of Plasmodium falciparum malaria cases (HST: Tajikistan, 2010). The cases of malaria were high because of the availability of breeding grounds close to open sewage pits, locked irrigated water, and rice and cotton irrigated lands. In between 1992 to 1997, cases of malaria were high because of the Civil War. The morbidity rate reached from 3.3 per 100000 populations in 1990 to 512 per 100000 populations in 1997 (HST: Tajikistan, 2010). Total number of reported malaria case was 175 in 1990, 404 in 1992, 2411 in 1994, 16651 in 1996, 29794 in 1997, 19064 in 2000, 5428 in 2003, 2398 in 2005 and 628 in 2007 (Matthys, Wyss and Sherkanov, 2008). The year 1997 was the peak year of malaria cases.

With the support of international agencies and international actors including Japan, Italy, Sweden, WHO, UNICEF, GFATM and USAID, the situation was improved. The SES, ACTED, RTDC and MoH combinedly worked on malaria control ways to make the disease surveillance and national health information stronger to facilitate intersectoral collaboration, and to conduct operational research (Matthys, Wyss and Sherkanov, 2008). The southern Tajikistan was largely affected by malaria endemic. The GFATM had provided US\$ 5.4 million and US\$ 13.4 million in 2005 and 2008 for the elimination of malaria from Tajikistan (HST: Tajikistan, 2010). In 2009, there was revision of the national strategy on malaria to eradicate the transmission of Plasmodium vivax malaria by 2015 (HST: Tajikistan, 2010). In 2015, Tajikistan reported zero indigenous cases. Deaths due to mental and behavioral disorders were 1.1 per 100000 population in 1990, 3.3 per 100000 populations in 1995 and 0.8 per 100000 population in 2013 (Table No.- 1).

As compared to Kazakhstan, deaths due to breast cancer, cervical cancer and lung cancer were low in Tajikistan. Dental health among children was also an important issue. According to Toirov (2003), 53% of children aged twelve years had a mean of 2.9 decayed or lost. In the south and mountainous regions, there was a health problem related to iodine deficiency diseases. There were only 32% in urban regions and 16% in rural regions utilizing iodized salt in 2000 (UNICEF: Tajikistan, 2000). Goiter rates were 65% in pregnant and breastfeeding women and 40% in children (HST: Tajikistan,

2010). Low urinary iodine excretion was 64% in children and 57% in women (SCoS, 2006). Immunization programme in Tajikistan was in a better condition which are discussed in an extensive way in later chapters.

Table No. – 1 Causes of Death per 100000 Populations: Communicable disease, Noncommunicable disease and External cause (Age- Standardized per 100000) (Selected Years)

Causes of Death per 100000 Populations: Communicable disease, Noncommunicable disease and External cause (Age- Standardized per 100000) (Selected Years)									
Indicators	Country	90	91	95	00	05	09	13	15
Infectious and parasitic diseases	Kazakh	24.11	-	46.10	39.74	31.21	19.41	-	-
	Tajik	43.5	-	62.2	35.6	-	-	13.8	-
Tuberculosis	Kazakh	13.53	-	32.06	30.81	26.36	14.04	-	-
	Tajik	7.2	-	13.3	17.3	-	-	4.9	-
AIDS/ HIV	Kazakh	-	-	-	-	0.46	0.83	-	-
	Tajik	0	-	0	0	-	-	1.6	-
Circulatory diseases	Kazakh	597.91	-	799.44	787.94	846.48	626.37	-	-
	Tajik	480.3	-	627.9	600.8	561	-	568.9	-
Ischemic heart disease	Kazakh	307.27	-	420.31	402.74	381.42	238.50	-	-
	Tajik	273.9	-	301.5	257.0	-	-	114.4	-
Cerebrovascular diseases	Kazakh	202.40	-	240.06	239.57	221.36	180.41	-	-
	Tajik	131.2	-	122.6	70.9	-	-	-	-
All cancers	Kazakh	215.5	-	203.24	190.61	172.72	155.30	-	-
	Tajik	-	-	-	-	-	-	-	-
Colon cancer	Kazakh	14.73	-	14.14	15.45	14.82	13.86	-	-
	Tajik	5.8	-	3.3	3.5	-	-	7.1	-
Larynx, trachea, bronchus and lung cancer	Kazakh	51.00	-	46.76	41.75	35.78	31.05	-	-
	Tajik	13.4	-	6.5	7.0	-	-	7.4	-
Breast Cancer	Kazakh	15.74	-	17.51	22.18	21.04	19.70	-	-
	Tajik	8.5	-	6.3	7.4	-	-	23.9	-
Cervical cancer	Kazakh	9.52	-	7.99	9.21	8.39	9.35	-	-
	Tajik	6.7	-	4.3	2.5	-	-	17.4	-
Diabetes	Kazakh	8.90	-	16.11	13.16	10.29	9.46	-	-
	Tajik	16.7	-	20.0	17.2	-	-	12.4	-
Mental and behavioral disorders	Kazakh	1.56	-	6.17	3.93	4.43	3.10	-	-
	Tajik	1.1	-	3.3	1.8	-	-	0.8	-
Respiratory disease	Kazakh	100.82	-	132.94	102.42	81.69	64.57	-	-
	Tajik	138.6	-	187.5	115.7	-	-	75.2	-
Diseases of the digestive system	Kazakh	38.42	-	50.12	53.09	64.59	58.04	-	-
	Tajik	38.9	-	49.7	47.2	-	-	40.5	-

Typhoid	Kazakh	-	-	-	-	-	-	-	-
	Tajik	-	-	-	-	-	-	-	-
Malignant neoplasm	Kazakh	-	-	-	-	-	-	-	-
	Tajik	113.0	111	69.2	77.7	-	-	76.2	-
Symptoms, signs, abnormal findings, ill-defined causes	Kazakh	-	-	-	-	-	-	-	-
	Tajik	50.8	-	72.2	70.2	-	-	-	-
Gonococcal infections	Kazakh	105.2	-	-	88.2	-	-	-	-
	Tajik	-	-	-	-	-	-	-	-
Transport accidents	Kazakh	28.39	-	19.33	14.07	25.58	20.98	-	-
	Tajik	-	-	-	-	-	-	-	-
Suicide and intentional self-harm	Kazakh	22.93	-	33.61	33.01	26.79	24.47	-	-
	Tajik	7.0	-	6.0	4.3	-	-	-	-
Injury and poison	Kazakh	-	-	-	-	-	-	-	-
	Tajik	57.6	-	79.3	36.4	-	-	22.5	-

Source: *The World Health Statistics, 2015*

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Conclusion:

It is crucial to conduct a comparative analysis of Kazakhstan and Tajikistan, as both nations are newly independent and have transitioned to new political and economic systems. Based on the figures, facts, and key findings presented in this comprehensive study, it can be concluded that, following their independence in 1991, both countries faced significant challenges due to their weakened economies. For the governments of both republics, advancing their health care sectors proved to be an arduous task. The aforementioned findings clearly demonstrate that, owing to inadequate financial resources and challenging geographical conditions, Tajikistan's health care sector remains underdeveloped. Moreover, gathering data on mortality and morbidity is particularly arduous due to the country's harsh geographical landscape. Conversely, the population of Kazakhstan is in relatively better circumstances, but diets low in antioxidants and high in fats, alcohol dependency, excessive salt consumption, substance abuse, and heavy smoking have exacerbated the prevalence of various diseases.

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