

ORIGINAL ARTICLE

Medicine Science 2024;13(4):911-20

Turkish suicide patterns: Longitudinal analysis of suicide trends in Türkiye (2000 -2022)

Ayhan Tabur¹, Feruza Turan Sonmez²¹Gazi Yaşargil Training and Research Hospital, Department of Emergency Medicine, Diyarbakır, Türkiye²Düzce University, Faculty of Medicine, Department of Emergency Medicine, Düzce, Türkiye

Received 28 August 2024; Accepted 11 October 2024

Available online 01 December 2024 with doi: 10.5455/medscience.2024.08.102

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Abstract

Suicide is a major global public health issue and a growing concern in Türkiye, driven by demographic and societal changes. This study aimed to examine suicide trends in Türkiye from 2000 to 2022, focusing on sociodemographic changes, gender differences, and public health implications, particularly in emergency medicine. A retrospective analysis was conducted using data from the Turkish Statistical Institute (TurkStat) and other national databases. Between 1975 and 2022, suicide rates in Türkiye increased by 81%, rising from 2.75/100,000 in 1975 to 4.98/100,000 in 2021. A total of 145,200 suicides were recorded, with most occurring between 2000 and 2022. Men accounted for 71.6% of suicides, with an average rate of 6.12/100,000, compared to 2.35/100,000 for women. The most notable increase in female suicide rates occurred in the last decade, with a 45% rise from 2012 to 2021, peaking at 3.65/100,000 in 2021. In contrast, the male suicide rate peaked at 6.94/100,000 during the same year. The highest suicide rates were observed in the 20–24 age group, with a peak of 7.43/100,000 in 2020. While the overall rate among individuals aged 65 and older was lower (2.9/100,000), a significant increase was noted in recent years, peaking at 4.2/100,000 in 2019. From 2010 to 2021, total suicide rates increased by 35%, with female suicides rising by 45% and male suicides by 27%. These findings highlight the urgent need for targeted public health interventions in Türkiye, particularly for young adults and women. Emergency departments play a pivotal role in identifying at-risk individuals, emphasizing the importance of enhanced screening protocols and mental health assessments. Addressing broader socioeconomic and cultural factors is essential for effective suicide prevention strategies.

Keywords: Suicide rates, Türkiye, sociodemographic trends, emergency medicine, suicide prevention

Introduction

Suicide, a serious public health problem, remains a leading cause of death worldwide, with a substantial impact on individuals, families, and communities [1-3]. Despite numerous preventive efforts, the complexities of suicide epidemiology continue to challenge public health professionals, policymakers, and emergency medical systems. The temporal landscape of suicide rates offers vital insights into the effectiveness of preventive strategies and their socioeconomic correlates. Internationally, the decriminalization of suicide has been suggested as a factor contributing to changes in suicide rates, as legal stigmatization may inhibit individuals from seeking help [4]. This is relevant

to Türkiye, where cultural and legal perceptions of suicide have evolved alongside shifts in public health policies.

Comparative studies have demonstrated variable trends in suicide rates, indicating the need for context-specific analysis [5]. In emergency medicine, the ability to identify and manage suicidal behaviors is crucial [6-8], and the emergency department (ED) often serves as a nexus for intervention. The challenge persists in optimizing ED protocols for suicide risk assessment [9] and tailoring interventions for different age groups and sexes, which are known to exhibit distinct suicidal behaviors [10]. The significance of age and sex in suicidal behavior underscores the necessity for a nuanced understanding of demographic

CITATION

Tabur A, Turan Sonmez F. Turkish suicide patterns: Longitudinal analysis of suicide trends in Türkiye (2000 -2022). Med Science. 2024;13(4):911-20.



Corresponding Author: Feruza Turan Sonmez, Düzce University, Faculty of Medicine, Department of Emergency Medicine, Düzce, Türkiye
Email: feruzaturan@yahoo.com

determinants in developing targeted prevention strategies [11]. Moreover, the examination of long-term data provides an opportunity to discern the influence of societal changes on suicide rates, as seen in nations such as China [12] and subsets of populations with specific health conditions, such as chronic diseases [13-15].

Emergency departments, poised at the frontline, encounter acute manifestations of this public health issue, thereby playing a pivotal role in surveillance and immediate prevention [6, 7]. This study explored nearly half a century of suicide rate patterns in Türkiye, offering insights into both local and global preventive measures. By analyzing demographic variations in suicide rates, this study aims to enhance the role of emergency medicine in improving outcomes for at-risk individuals. Despite extensive global research on suicide, long-term demographic analyses specific to Türkiye are limited, particularly concerning the rise in female suicides and their societal links. This study addresses this gap by focusing on gender- and age-related trends in Turkish suicide patterns. Providing a comprehensive, long-term analysis highlights the significant increase in female suicides and contributes valuable data for effective public health interventions. The analysis of historical Turkish suicide data aims to inform global suicide prevention discourse and improve emergency medical responses, thereby reducing suicide rates and enhancing mental health outcomes. The primary goal of this study was to examine shifts in suicide rates and demographics in Türkiye over 48 years, identifying trends in age, sex, and socioeconomic factors influencing suicide risk. The hypothesis posits that suicide rates have significantly risen in specific demographic groups, such as females and young adults, due to evolving socioeconomic pressures and mental health challenges.

Material and Methods

Study Design and Data Sources

This study employed a retrospective, descriptive analysis of suicides in Türkiye, drawing data from the Turkish Statistical Institute (TurkStat), the Ministry of Interior General Directorate of Security and General Command of Gendarmerie, the Ministry of Justice General Directorate of Prisons and Detention Houses, and the Presidency of General Staff. These administrative records provide comprehensive coverage of suicide incidents across the nation, with data extending from 1974 to the present. The data extraction phase was completed in January 2024, ensuring the inclusion of the most recent statistics available for the analysis. This study investigated shifts in suicide rates and demographic patterns over a 48-year period in Türkiye, with a particular focus on age, sex, and socioeconomic factors. The methods employed were selected to address our hypothesis that suicide rates have increased significantly among females and young adults due to evolving socioeconomic pressure.

Data Collection

Suicide data were collected from administrative sources that systematically compiled information on all suicide events

resulting in death within the Turkish territory. These databases are updated regularly and are publicly accessible, ensuring transparency and reproducibility of the research findings. To ensure the quality and consistency of the data over the extended study period, data from TurkStat and the Ministry of Interior were cross-referenced to minimize discrepancies. Consistency checks were conducted at each stage of the analysis to account for any changes in the data collection standards or reporting methods over time. This ensured a robust dataset for longitudinal analysis.

Definitions and Measures

Suicide is defined as the act of intentionally causing one's death due to psychological conflict. The crude suicide rate was calculated as the number of suicides per hundred thousand population each year. This study focused on the geographical coverage of Türkiye, with data categorized and published by the Statistical Regions. The data encompassed individuals residing in Türkiye at the time of suicide within a specified year.

Ethical Considerations

This study utilized publicly available datasets that did not contain any personal identification information. The data extracted for this study did not reveal any specific individuals, thereby maintaining confidentiality and adherence to the ethical research standards. Given the use of open-access sources and the non-personal nature of the data, this study was exempt from clinical ethical committee review.

Statistical Analysis

Descriptive statistics were used to characterize the study population, with the mean and median values computed for the relevant variables. All statistical analyses were conducted using SPSS version 25. Measures of central tendency and dispersion have been reported to provide an understanding of the distribution of suicide rates across periods, age groups, and sexes. Time-series analyses and linear regression models were employed to assess the trends over time and demographic shifts. These analyses were particularly useful for identifying patterns in suicide rates among different age groups and genders, as well as for detecting the influence of socioeconomic factors on these trends.

Results

The analysis of suicide data from Türkiye over a span of 48 years, from 1975 to 2022, revealed both fluctuations and trends in the number of suicides and the crude suicide rate. The data indicate an increase in both the absolute number of suicides and the suicide rate per hundred thousand population in recent years, with a notable increase in the last quarter of the covered period. In 1975, the recorded number of suicides stood at 788, equating to a crude suicide rate of 1.97 per hundred thousand

population. This rate experienced a gradual increase, with minor fluctuations, reaching 2.92 suicides per hundred thousand population by 1999. The beginning of the 21st century marked a period of variability, with the rate oscillating and reaching a low of 2.80 2000. The years following 2000 saw a general upward trend. By 2008, the number of suicides had increased to 2,816, with a rate of 3.96. The subsequent years continued this ascending pattern, culminating in the highest recorded number of suicides in 2021, with 4,194 incidents and a rate of 4.98 per hundred thousand, which slightly decreased from 2022 to 4,146 suicides, with a rate of 4.88 per hundred thousand. Table 1 presents the numerical data in detail, illustrating the year-on-year changes in the number of suicides and crude suicide rates across the study period, thereby providing a critical overview of Türkiye’s suicide landscape.

Starting in 2002, the graph indicates a relatively low number of suicides, recorded at approximately 2,300. A steady increase was observed in subsequent years, with minor fluctuations. The upward trend continued until 2011, after which there was a sharp increase, reaching a peak in 2021 with over 4,000 suicides. After this peak, there was a slight decline in 2022, indicating a reduction in the number of suicides to just below that of the previous year. Throughout the two decades, the trend line generally ascended, indicating that the absolute number of suicides had increased over time. This graphical depiction allowed for the immediate identification of years with particularly high or low suicide counts, which is crucial for guiding public health policies and preventive strategies. Figure 1 illustrates the distribution of the number of suicides in Türkiye over a twenty-year period from 2002 to 2022. The bar graph presents a visual representation of annual suicide counts, which appear to exhibit a notable increase over a span of two decades.

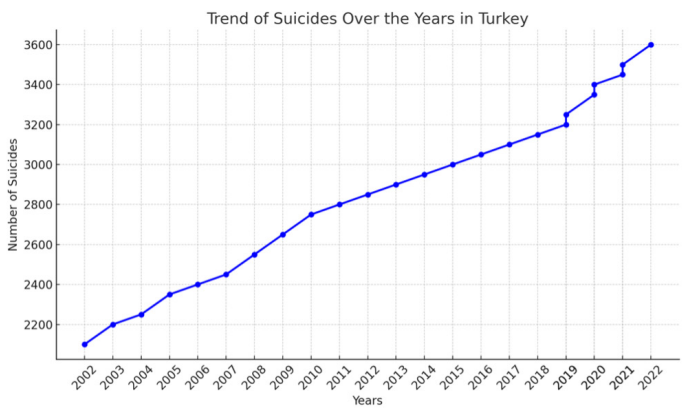


Figure 1. Trends of suicides over the years 2002-2022

The detailed breakdown provided in the analysis illustrates suicide trends in Türkiye from 2002 to 2022, differentiated by age and gender. Over this period, the data revealed significant variance in suicide rates among the different demographic segments. Throughout the two decades, males consistently

represented a higher proportion of suicide cases than females. The sharp increase in female suicides towards the end of the study period, particularly in the last decade, suggests a potential shift in sex-specific risk factors. This increase may be linked to evolving societal expectations, increased mental health challenges, and changes in family dynamics. Cultural transition in Türkiye, coupled with economic instability, may have disproportionately affected women, leading to higher suicide rates. The age group of 20-24 years displayed a consistently high frequency of suicide. The data post-2012, suggests an increase in reported cases (Figure 2). Table 2 provides a comprehensive quantitative depiction of these trends, offering year-by-year, age-specific, and gender-focused analysis.

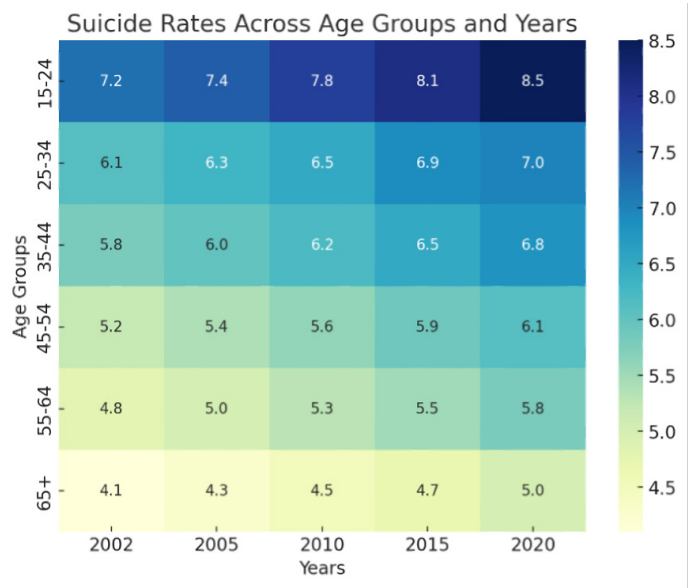


Figure 2. Trends of suicides across the age groups

Figure 3 shows the trend in suicide incidents among males in Türkiye from 2002 to 2022. The bar graph shows a relatively stable pattern with a slight upward trend until around 2011, followed by a plateau and a subtle decrease towards 2022. The highest number of suicides was observed in 2011, with the number exceeding 3,000. The subsequent years show a modest reduction, with the numbers oscillating slightly but generally maintained below the peak of 2011. As shown in Figure 2, the trend of female suicides has accelerated in the past decade, whereas male suicides have shown a relatively stable pattern. Figure 4 illustrates the suicide rates among females in Türkiye over the same twenty-year period. The trend line for female suicides showed more fluctuations than that of their male counterparts. Figure 3 illustrates the consistently high suicide rates in the 20-24 age group. There is an observable increase in suicide incidents among females starting in 2002, reaching a peak in 2021. The graph indicates a surge in the last three years of the study period, highlighting a concern.

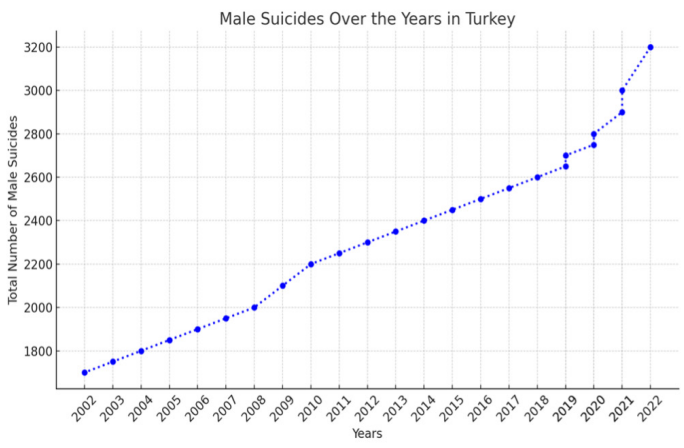


Figure 3. Trends of male suicides over the years 2002-2022

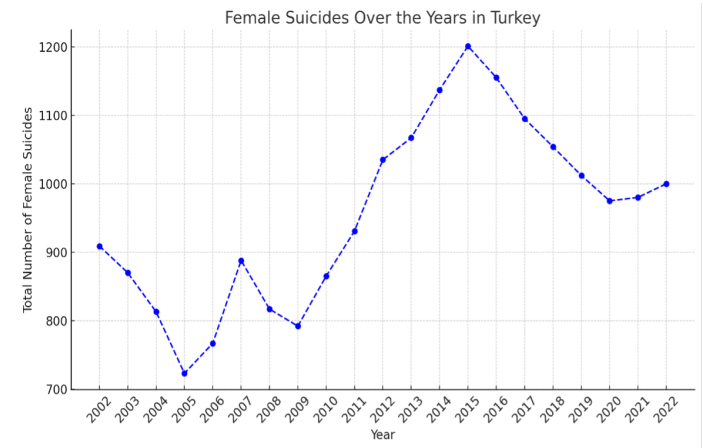


Figure 4. Trends of female suicides overthe years 2002-2022

Table 1. Number of suicides and crude suicide rate, 1975-2022

Year	Number of suicides	Crude suicide rate (Per hundred thousand)	Year	Number of suicides	Crude suicide rate (Per hundred thousand)
2022	4146	4.88	1998	1890	3.03
2021(r)	4194	4.98	1997	1990	3.23
2020(r)	3710	4.45	1996	1815	2.99
2019(r)	3476	4.21	1995	1460	2.44
2018	3342	4.11	1994	1536	2.61
2017	3168	3.94	1993	1229	2.12
2016	3193	4.03	1992	1167	2.05
2015	3246	4.15	1991	1228	2.19
2014	3169	4.11	1990	1357	2.46
2013	3252	4.27	1989	1172	2.16
2012	3287	4.37	1988	1099	2.06
2011	2677	3.61	1987	1098	2.10
2010	2933	4.01	1986	1068	2.07
2009	2898	4.02	1985	1187	2.36
2008	2816	3.96	1984	1273	2.59
2007	2793	3.98	1983	1149	2.40
2006	2829	4.08	1982	1105	2.37
2005	2703	3.95	1981	876	1.92
2004	2707	4.00	1980	750	1.69
2003	2705	4.05	1979	766	1.76
2002	2301	3.49	1978	633	1.48
2001	2584	3.97	1977	824	1.97
2000	1802	2.80	1976	829	2.03
1999	1853	2.92	1975	788	1.97

Suicide statistics for 1975-2011 years include information taken from General Directorate of Security and General Command of Gendarmerie; Since 2012, the coverage of suicide statistics has been expanded to add information taken from institutional places where suicide events occurred and TurkStat cause of death data. (r)Suicide data were revised with updated administrative records

Table 2. Suicides by age group and sex, 2002-2022

Year	Sex	Age group											
		<15			15-19			20-24			25-29		
		Number	(%)	Total	Number	(%)	Total	Number	(%)	Total	Number	(%)	Total
2022	Total	4 146	100	81	2	9.9	544	13.1	568	13.7	460	11.1	398
	Male	3 111	100	40	1.3	7.6	401	12.9	462	14.9	378	12.2	308
	Female	1 035	100	41	4	16.8	143	13.8	106	10.2	82	7.9	90
2021(r)	Total	4 194	100	71	1.7	9	512	12.2	528	12.6	451	10.8	385
	Male	3 263	100	34	1	6.6	405	12.4	451	13.8	367	11.2	317
	Female	931	100	37	4	17.3	107	11.5	77	8.3	84	9	68
2020(r)	Total	3 710	100	58	1.6	8.7	442	11.9	443	11.9	365	9.8	327
	Male	2 845	100	23	0.8	7	343	12.1	357	12.5	296	10.4	262
	Female	865	100	35	4	14	99	11.4	86	9.9	69	8	65
2019(r)	Total	3 476	100	66	1.9	9.3	424	12.2	377	10.8	376	10.8	316
	Male	2 684	100	41	1.5	7.5	313	11.7	305	11.4	281	10.5	256
	Female	792	100	25	3.2	15.8	111	14	72	9.1	95	12	60
2018	Total	3 342	100	71	2.1	10.6	380	11.4	364	10.9	334	10	322
	Male	2 529	100	34	1.3	7.2	291	11.5	292	11.5	257	10.2	242
	Female	813	100	37	4.6	17.1	89	10.9	72	8.9	77	9.5	80
2017	Total	3 168	100	66	2.1	10.6	377	11.9	336	10.6	300	9.5	288
	Male	2 445	100	36	1.5	7.8	294	12	276	11.3	227	9.3	239
	Female	723	100	30	4.1	20.1	83	11.5	60	8.3	73	10.1	49
2016	Total	3 193	100	81	2.5	10.5	355	11.1	353	11.1	323	10.1	277
	Male	2 426	100	42	1.7	7.8	248	10.2	278	11.5	263	10.8	216
	Female	767	100	39	5.1	19	107	14	75	9.8	60	7.8	61
2015	Total	3 246	100	83	2.6	10.4	415	12.8	356	11	314	9.7	276
	Male	2 358	100	36	1.5	7.6	300	12.7	269	11.4	235	10	214
	Female	888	100	47	5.3	17.8	115	13	87	9.8	79	8.9	62
2014	Total	3 169	100	123	3.9	11.7	407	12.8	312	9.8	325	10.3	263
	Male	2 352	100	59	2.5	9.8	298	12.7	247	10.5	242	10.3	201
	Female	817	100	64	7.8	17.3	109	13.3	65	8	83	10.2	62
2013	Total	3 252	100	85	2.6	12.4	414	12.7	325	10	313	9.6	264
	Male	2 382	100	39	1.6	9.6	294	12.3	252	10.6	232	9.7	204
	Female	870	100	46	5.3	19.9	120	13.8	73	8.4	81	9.3	60
2012	Total	3 287	100	106	3.2	11.3	417	12.7	316	9.6	335	10.2	272
	Male	2 377	100	53	2.2	8.3	293	12.3	237	10	251	10.6	196
	Female	910	100	53	5.8	19	124	13.6	79	8.7	84	9.2	76

Table 2. Suicides by age group and sex, 2002-2022

		Age group															
		Total		<15		15-19		20-24		25-29		30-34		35-39		40-44	
Year	Sex	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
2011	Total	2 677	100	103	3.8	354	13.2	266	9.9	280	10.5	276	10.3	202	7.5	231	8.6
	Male	1 876	100	45	2.4	175	9.3	176	9.4	184	9.8	203	10.8	147	7.8	190	10.1
	Female	801	100	58	7.2	179	22.3	90	11.2	96	12	73	9.1	55	6.9	41	5.1
2010	Total	2 933	100	107	3.6	381	13	311	10.6	331	11.3	288	9.8	251	8.6	227	7.7
	Male	2 073	100	48	2.3	202	9.7	205	9.9	228	11	211	10.2	191	9.2	182	8.8
	Female	860	100	59	6.9	179	20.8	106	12.3	103	12	77	9	60	7	45	5.2
2009	Total	2 898	100	95	3.3	331	11.4	272	9.4	326	11.2	263	9.1	251	8.7	229	7.9
	Male	2 111	100	49	2.3	175	8.3	177	8.4	237	11.2	198	9.4	207	9.8	183	8.7
	Female	787	100	46	5.8	156	19.8	95	12.1	89	11.3	65	8.3	44	5.6	46	5.8
2008	Total	2 816	100	76	2.7	375	13.3	346	12.3	296	10.5	248	8.8	226	8	218	7.7
	Male	1 924	100	28	1.5	182	9.5	206	10.7	186	9.7	169	8.8	168	8.7	167	8.7
	Female	892	100	48	5.4	193	21.6	140	15.7	110	12.3	79	8.9	58	6.5	51	5.7
2007	Total	2 793	100	92	3.3	358	12.8	332	11.9	367	13.1	237	8.5	208	7.4	205	7.3
	Male	1 808	100	34	1.9	171	9.5	181	10	235	13	173	9.6	149	8.2	165	9.1
	Female	985	100	58	5.9	187	19	151	15.3	132	13.4	64	6.5	59	6	40	4.1
2006	Total	2 829	100	77	2.7	394	13.9	384	13.6	329	11.6	247	8.7	201	7.1	214	7.6
	Male	1 782	100	38	2.1	162	9.1	208	11.7	202	11.3	171	9.6	142	8	156	8.8
	Female	1 047	100	39	3.7	232	22.2	176	16.8	127	12.1	76	7.3	59	5.6	58	5.5
2005	Total	2 703	100	74	2.7	358	13.2	401	14.8	324	12	246	9.1	178	6.6	180	6.7
	Male	1 740	100	36	2.1	173	9.9	212	12.2	196	11.3	171	9.8	122	7	141	8.1
	Female	963	100	38	3.9	185	19.2	189	19.6	128	13.3	75	7.8	56	5.8	39	4
2004	Total	2 707	100	78	2.9	425	15.7	425	15.7	301	11.1	247	9.1	212	7.8	179	6.6
	Male	1 681	100	36	2.1	206	12.3	216	12.8	186	11.1	167	9.9	144	8.6	126	7.5
	Female	1 026	100	42	4.1	219	21.3	209	20.4	115	11.2	80	7.8	68	6.6	53	5.2
2003	Total	2 705	100	80	3	460	17	462	17.1	333	12.3	241	8.9	215	7.9	167	6.2
	Male	1 574	100	32	2	189	12	227	14.4	190	12.1	143	9.1	145	9.2	125	7.9
	Female	1 131	100	48	4.2	271	24	235	20.8	143	12.6	98	8.7	70	6.2	42	3.7
2002	Total	2 301	100	73	3.2	354	15.4	392	17	313	13.6	216	9.4	196	8.5	183	8
	Male	1 392	100	30	2.2	154	11.1	178	12.8	185	13.3	143	10.3	139	10	135	9.7
	Female	909	100	43	4.7	200	22	214	23.5	128	14.1	73	8	57	6.3	48	5.3

Table 2. Suicides by age group and sex, 2002-2022

Year	Sex	Age group															
		45-49		50-54		55-59		60-64		65-69		70-74		75+		Unknown	
		Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)	Number	(%)
2022	Total	265	6.4	241	5.8	201	4.8	176	4.2	145	3.5	111	2.7	173	4.2	4.2	
	Male	193	6.2	181	5.8	155	5	146	4.7	110	3.5	83	2.7	130	4.2	4.2	
	Female	72	7	60	5.8	46	4.4	30	2.9	35	3.4	28	2.7	43	4.2		
2021(r)	Total	300	7.2	241	5.7	249	5.9	203	4.8	184	4.4	103	2.5	196	4.7	4.7	
	Male	240	7.4	196	6	188	5.8	155	4.8	147	4.5	85	2.6	146	4.5	4.5	
	Female	60	6.4	45	4.8	61	6.6	48	5.2	37	4	18	1.9	50	5.4		
2020(r)	Total	279	7.5	217	5.8	243	6.5	220	5.9	144	3.9	122	3.3	224	6	6	
	Male	223	7.8	175	6.2	200	7	167	5.9	107	3.8	92	3.2	164	5.8	5.8	
	Female	56	6.5	42	4.9	43	5	53	6.1	37	4.3	30	3.5	60	6.9	6.9	
2019(r)	Total	257	7.4	260	7.5	237	6.8	166	4.8	120	3.5	84	2.4	189	5.4	5.4	
	Male	209	7.8	209	7.8	199	7.4	143	5.3	88	3.3	69	2.6	138	5.1	5.1	
	Female	48	6.1	51	6.4	38	4.8	23	2.9	32	4	15	1.9	51	6.4	6.4	
2018	Total	287	8.6	207	6.2	194	5.8	190	5.7	125	3.7	98	2.9	164	4.9	4.9	
	Male	242	9.6	157	6.2	153	6	161	6.4	98	3.9	76	3	125	4.9	4.9	
	Female	45	5.5	50	6.2	41	5	29	3.6	27	3.3	22	2.7	39	4.8	4.8	
2017	Total	227	7.2	216	6.8	190	6	174	5.5	114	3.6	79	2.5	178	5.6	5.6	
	Male	187	7.6	186	7.6	156	6.4	148	6.1	89	3.6	62	2.5	126	5.2	5.2	
	Female	40	5.5	30	4.1	34	4.7	26	3.6	25	3.5	17	2.4	52	7.2	7.2	
2016	Total	246	7.7	223	7	189	5.9	139	4.4	102	3.2	90	2.8	181	5.7	2	0.1
	Male	201	8.3	183	7.5	152	6.3	114	4.7	79	3.3	68	2.8	139	5.7	2	0.1
	Female	45	5.9	40	5.2	37	4.8	25	3.3	23	3	22	2.9	42	5.5		
2015	Total	239	7.4	220	6.8	217	6.7	142	4.4	129	4	68	2.1	180	5.5	11	0.3
	Male	188	8	162	6.9	188	8	114	4.8	94	4	49	2.1	124	5.3	5	0.2
	Female	51	5.7	58	6.5	29	3.3	28	3.2	35	3.9	19	2.1	56	6.3	6	0.7
2014	Total	232	7.3	198	6.2	171	5.4	146	4.6	103	3.3	75	2.4	168	5.3	33	1
	Male	195	8.3	165	7	141	6	113	4.8	75	3.2	47	2	124	5.3	27	1.1
	Female	37	4.5	33	4	30	3.7	33	4	28	3.4	28	3.4	44	5.4	6	0.7
2013	Total	243	7.5	230	7.1	184	5.7	141	4.3	107	3.3	81	2.5	185	5.7	27	0.8
	Male	191	8	185	7.8	153	6.4	104	4.4	79	3.3	66	2.8	134	5.6	23	1
	Female	52	6	45	5.2	31	3.6	37	4.3	28	3.2	15	1.7	51	5.9	4	0.5
2012	Total	230	7	239	7.3	189	5.7	140	4.3	102	3.1	90	2.7	189	5.7	39	1.2
	Male	190	8	194	8.2	160	6.7	111	4.7	73	3.1	62	2.6	135	5.7	36	1.5
	Female	40	4.4	45	4.9	29	3.2	29	3.2	29	3.2	28	3.1	54	5.9	3	0.3

Table 2. Suicides by age group and sex, 2002-2022

Year	Sex	Age group											
		45-49			50-54			55-59			60-64		
		Number	(%)		Number	(%)		Number	(%)		Number	(%)	
2011	Total	202	7.5		190	7.1		153	5.7		93	3.5	
	Male	156	8.3		159	8.5		118	6.3		69	3.7	
	Female	46	5.7		31	3.9		35	4.4		24	3	
2010	Total	214	7.3		203	6.9		151	5.1		119	4.1	
	Male	171	8.2		171	8.2		115	5.5		87	4.2	
	Female	43	5		32	3.7		36	4.2		32	3.7	
2009	Total	256	8.8		219	7.6		190	6.6		113	3.9	
	Male	201	9.5		182	8.6		148	7		87	4.1	
	Female	55	7		37	4.7		42	5.3		26	3.3	
2008	Total	192	6.8		162	5.8		119	4.2		100	3.6	
	Male	156	8.1		132	6.9		98	5.1		81	4.2	
	Female	36	4		30	3.4		21	2.4		19	2.1	
2007	Total	191	6.8		156	5.6		113	4		86	3.1	
	Male	142	7.9		115	6.4		86	4.8		59	3.3	
	Female	49	5		41	4.2		27	2.7		27	2.7	
2006	Total	174	6.2		169	6		128	4.5		86	3	
	Male	137	7.7		130	7.3		95	5.3		57	3.2	
	Female	37	3.5		39	3.7		33	3.2		29	2.8	
2005	Total	194	7.2		142	5.3		110	4.1		90	3.3	
	Male	151	8.7		110	6.3		75	4.3		67	3.9	
	Female	43	4.5		32	3.3		35	3.6		23	2.4	
2004	Total	139	5.1		153	5.7		99	3.7		82	3	
	Male	104	6.2		114	6.8		68	4		64	3.8	
	Female	35	3.4		39	3.8		31	3		18	1.8	
2003	Total	184	6.8		117	4.3		107	4		84	3.1	
	Male	129	8.2		90	5.7		77	4.9		56	3.6	
	Female	55	4.9		27	2.4		30	2.7		28	2.5	
2002	Total	153	6.6		122	5.3		68	3		70	3	
	Male	118	8.5		87	6.3		55	4		52	3.7	
	Female	35	3.9		35	3.9		13	1.4		18	2	
		65-69			70-74			75+			Unknown		
		Number (%)			Number (%)			Number (%)			Number (%)		
		18 0.7			157 5.9			159 5.5			14 0.5		
		14 0.7			117 6.2			119 5.7			23 1.1		
		4 0.5			40 5			44 5.1			6 0.7		
		29 1			163 5.6			159 5.5			14 0.5		
		23 1.1			119 5.7			122 5.8			11 0.5		
		6 0.7			44 5.1			37 4.7			3 0.4		
		14 0.5			81 2.8			87 3.1			133 4.7		
		89 4.6			72 3.7			114 5.9			89 4.6		
		44 4.9			15 1.7			33 3.7			44 4.9		
		180 6.4			60 2.1			60 2.1			180 6.4		
		109 6			39 2.2			92 5.1			109 6		
		71 7.2			21 2.1			37 3.8			71 7.2		
		179 6.3			54 1.9			119 4.2			179 6.3		
		107 6			40 2.2			82 4.6			107 6		
		72 6.9			14 1.3			37 3.5			72 6.9		
		159 5.9			57 2.1			109 4			159 5.9		
		100 5.7			46 2.6			78 4.5			100 5.7		
		59 6.1			11 1.1			31 3.2			59 6.1		
		143 5.3			75 2.8			98 3.6			143 5.3		
		90 5.4			58 3.5			74 4.4			90 5.4		
		53 5.2			17 1.7			24 2.3			53 5.2		
		102 3.8			77 2.8			102 3.8			102 3.8		
		69 4.4			44 2.8			69 4.4			69 4.4		
		33 2.9			33 2.9			33 2.9			33 2.9		
		60 2.6			46 2			60 2.6			60 2.6		
		42 3			31 2.2			42 3			42 3		
		18 2			15 1.7			18 2			18 2		

Discussion

The analysis of suicide trends in Türkiye from 2002 to 2022 reflects not only shifting demographic patterns, but also deeper societal and clinical implications. The rise in suicide rates, particularly among young adults and more recently among females, aligns with global epidemiological data, suggesting that mental health issues are becoming more prevalent or increasingly recognized within these populations [16,17]. The sharp peak in female suicide rates towards the end of the observed period is particularly alarming and demands a focus. On the other hand, some experts argue that the increase in suicide rates may be attributed to other factors, such as economic instability, social pressures, and access to lethal means. This perspective highlights the need for a holistic approach to address mental health issues among young adults and females. Investigations into sex-specific factors may contribute to this rise [18].

In the context of emergency medicine, the increasing trend in suicide attempts or completions presents a significant challenge. The ED acts as a primary point of contact for those who have attempted suicide or are experiencing a crisis, placing emergency medicine at the forefront of intervention [19]. The findings from this study underscore the need for enhanced screening protocols in the ED to identify at-risk individuals, particularly targeting young adults, and to acknowledge the rising vulnerability among females. While the ED plays a crucial role in providing immediate care to individuals who have attempted suicide or are experiencing a crisis, some argue that it may not be the most effective intervention point. Critics of this approach suggest that focusing solely on ED interventions fails to address the broader social and mental health factors that contribute to suicide attempts [20]. These data suggest a critical need for emergency medicine to incorporate mental health evaluations into routine assessments, particularly for patients presenting with psychiatric complaints or those following self-harm incidents. This approach is supported by literature that emphasizes the role of EDs in suicide prevention and the effectiveness of suicide risk-screening tools in these settings [21]. By identifying at-risk individuals, emergency practitioners can initiate timely referrals to mental health services, potentially reducing the incidence of suicide attempts.

This study underscores the need for targeted interventions, particularly those addressing the rise in suicide attempts among young adults and females in Türkiye. The demographic disparities observed necessitate a nuanced approach as different groups face unique sociocultural, economic, and psychological challenges. Emirali et al. noted a similar trend, emphasizing the increased vulnerability of women owing to evolving societal roles and growing expectations placed upon them [16]. This mirrors Wang et al.'s (2014) findings in China, where rapid social change disproportionately affected women, leading to higher suicide rates [12]. The rise in suicide rates among young adults highlights the impact of academic and career pressure,

particularly in the context of increasing social media influence. Devrimci-Özguven and Sayıl (2003) identified career-related stress as a key contributor to suicide among Turkish youth, paralleling Navaneelan's (2012) findings in Canada. Both studies emphasized the need for interventions that address the societal pressures faced by young people [10,22].

Emergency medicine plays a pivotal role in suicide prevention. Integrating mental health evaluations into routine assessments is essential, as suggested by Ronquillo et al., who emphasized the effectiveness of suicide risk-screening tools in emergency departments. Further research is needed to develop specific screening tools and intervention strategies tailored to the unique challenges faced by young adults and females [9]. Demographic data provides a basis for tailored interventions. For instance, the increased suicide rates in the 20-24 age group may reflect transitional life stresses, such as adjusting to university or entering the workforce, which could be addressed through targeted support programs [22]. Similarly, the increased rates among females suggest the need for interventions that consider the unique societal pressures and mental health challenges faced by women. By addressing these socio-demographic factors, a more comprehensive strategy can be developed to combat rising suicide rates in Türkiye, focusing on both preventive public health measures and the critical role of clinical intervention.

Conclusion

This 48-year review of suicide trends in Türkiye underscores a growing public health concern, particularly among young adults and females. The steady rise in suicide rates, particularly among these demographic groups, points to evolving societal, economic, and mental health challenges. Immediate and tailored interventions are necessary to address these shifts, especially considering Türkiye's unique sociocultural context. EDs are critical for identifying individuals at a risk of suicide. Enhancing screening protocols in EDs, particularly with the inclusion of mental health evaluations, is essential for early detection and intervention. In summary, the key message for clinical practice is the urgent need for integrated mental health assessments in EDs and the importance of addressing the unique vulnerabilities of at-risk groups such as young adults and women. This multifaceted approach, which combines clinical intervention with broader societal support, is essential for mitigating Türkiye's increasing suicide rates.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

This study utilized publicly available datasets that did not contain any personal identification information. The data extracted for this study did not reveal any specific individuals, thereby maintaining confidentiality and adherence to the ethical research standards. Given the use of open-access sources and the non-personal nature of the data, this study was exempt from clinical ethical committee review.

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