

Table S1. Age-standardized incidence, prevalence , mortality, and DALY rates of Myeloproliferative and Myelodysplastic Syndromes among females in Iran by province, 2021, based on GBD 2021 estimates.

Province	Mortality		DALY		Prevalence		Incidence	
	Count	ASMR	Count	ASDR	Count	ASPR	Count	ASIR
Iran (Islamic Republic of)	13.82 (9.81–16.92)	0.42 (0.03–0.05)	648.16 (475.78–824.37)	16.05 (1.21–2.02)	7219.72 (5837.72–8978.91)	164.62 (13.39–20.28)	338.22 (267.09–422)	7.48 (0.61–0.9)
Alborz	0.77 (0.37–1.02)	0.96 (0.04–0.13)	30.16 (20.23–39.15)	24.62 (1.5–3.18)	261.96 (207.85–336.73)	167.65 (13.46–21.23)	12.38 (9.56–16.07)	7.61 (0.61–0.94)
Ardebil	0.13 (0.09–0.17)	0.23 (0.01–0.03)	8.28 (5.69–11.44)	12.64 (0.89–1.7)	115.47 (89.62–145.76)	169.62 (13.34–21.47)	5.35 (4.18–6.85)	7.74 (0.62–0.96)
Bushehr	0.14 (0.1–0.18)	0.38 (0.02–0.05)	8.21 (5.9–11.13)	15.87 (1.16–2.12)	98.39 (76.97–124.81)	175.64 (13.97–22.1)	4.92 (3.91–6.24)	8.16 (0.66–1)
Chahar Mahaal and Bakhtiari	0.16 (0.09–0.24)	0.39 (0.02–0.06)	7.95 (5.52–10.79)	16.47 (1.17–2.21)	90.08 (70.86–113.11)	179.06 (14.12–22.47)	4.28 (3.36–5.42)	8.21 (0.66–1.01)
East Azarbayegan	0.56 (0.41–0.72)	0.36 (0.03–0.05)	29.34 (21.83–38.87)	14.45 (1.11–1.88)	364.67 (283.33–459.05)	163.49 (12.85–20.37)	16.89 (12.88–21.19)	7.49 (0.59–0.91)
Fars	0.33 (0.23–0.46)	0.17 (0.01–0.02)	27.86 (18.7–40.4)	10.92 (0.75–1.55)	431.67 (337.24–540.18)	160.15 (12.67–20)	20.09 (15.83–25.9)	7.28 (0.59–0.91)
Gilan	0.43 (0.31–0.56)	0.32 (0.02–0.04)	21.42 (15.13–28.46)	13.91 (1.02–1.81)	273.34 (211.04–342.49)	168.12 (13.16–20.91)	11.86 (9.14–14.87)	7.64 (0.61–0.93)

Golestan	0.5 (0.22–0.67)	0.69 (0.03–0.09)	20.42 (12.9–25.74)	22.65 (1.34–2.86)	161.43 (128.34–203.21)	164.3 (13.14–20.53)	7.82 (6.01–9.92)	7.54 (0.6–0.92)
Hamadan	0.51 (0.23–0.68)	0.61 (0.03–0.08)	18.51 (11.24–23.79)	20.7 (1.22–2.67)	155.9 (122.72–195.85)	163.22 (12.97–20.38)	7.13 (5.54–8.83)	7.48 (0.6–0.91)
Hormozgan	0.52 (0.17–0.69)	0.95 (0.03–0.13)	20.93 (10.66–27.3)	28.34 (1.36–3.68)	139.21 (107.38–173.95)	168.34 (13.2–21.1)	7.18 (5.47–9.18)	7.75 (0.62–0.95)
Ilam	0 (0–0.02)	0.01 (0–0.01)	2.98 (1.76–4.72)	9.77 (0.58–1.49)	63.69 (50.24–80.69)	208.4 (16.54–26.11)	3.26 (2.5–4.2)	10.17 (0.82–1.25)
Isfahan	1.58 (0.68–2.16)	0.71 (0.03–0.1)	57.08 (35.13–73.66)	21.63 (1.25–2.78)	485.42 (383.64–612.27)	164.5 (13.05–20.51)	22.11 (17.21–27.72)	7.42 (0.6–0.9)
Kerman	0.42 (0.29–0.56)	0.4 (0.03–0.05)	22.54 (15.85–30.26)	15.61 (1.12–2.04)	257.16 (199.67–326.28)	163.33 (12.73–20.47)	12.57 (9.75–15.91)	7.47 (0.6–0.92)
Kermanshah	0.16 (0.11–0.21)	0.18 (0.01–0.02)	11.92 (8.13–17.33)	11.31 (0.78–1.59)	179.96 (140.62–229.08)	162.68 (12.92–20.48)	8.28 (6.3–10.48)	7.48 (0.59–0.92)
Khorasan-e-Razavi	0.88 (0.61–1.15)	0.35 (0.02–0.05)	46.55 (34.21–61.87)	14.95 (1.12–1.95)	540.08 (414.12–673.76)	161.89 (12.64–20.18)	26.31 (20.4–32.43)	7.44 (0.59–0.9)
Khuzestan	0.28 (0.2–0.38)	0.17 (0.01–0.02)	24.61 (16.95–36.54)	11.13 (0.79–1.62)	372.92 (284.99–462.37)	161.58 (12.6–19.75)	18.37 (14.24–22.8)	7.34 (0.58–0.88)
Kohgiluyeh and Boyer-Ahmad	0 (0–0.02)	0.01 (0–0.01)	3.13 (1.78–4.95)	9.22 (0.54–1.46)	66.47 (51.83–84.58)	197.32 (15.73–24.6)	3.58 (2.79–4.61)	9.74 (0.79–1.19)

Kurdistan	0.43 (0.18–0.59)	0.61 (0.03–0.08)	16.84 (10.26–21.68)	20.71 (1.22–2.65)	146.66 (116.7–184.35)	165.94 (13.37–20.57)	6.9 (5.39–8.79)	7.6 (0.62–0.92)
Lorestan	0.4 (0.2–0.51)	0.55 (0.03–0.07)	16.16 (11.45–21.03)	18.81 (1.27–2.41)	149.37 (114.19–189.04)	162.32 (12.67–20.33)	6.97 (5.46–8.81)	7.34 (0.59–0.89)
Markazi	0.16 (0.11–0.2)	0.21 (0.01–0.03)	9.36 (6.47–13.07)	11.89 (0.84–1.64)	133.54 (105.45–167.55)	165.47 (13.28–20.48)	6.01 (4.69–7.68)	7.53 (0.6–0.93)
Mazandaran	0.67 (0.45–0.89)	0.4 (0.03–0.05)	30.24 (21.53–40.03)	15.68 (1.14–2.04)	335.3 (258.3–424.65)	162.37 (12.59–20.38)	14.8 (11.25–18.63)	7.3 (0.58–0.9)
North Khorasan	0 (0–0.03)	0.01 (0–0.01)	3.56 (1.98–5.72)	8.42 (0.48–1.37)	76.13 (59.14–98.38)	180.25 (14.02–22.93)	3.84 (2.98–4.92)	8.67 (0.69–1.07)
Qazvin	0.01 (0–0.05)	0.01 (0–0.01)	5.34 (3.07–8.61)	7.72 (0.45–1.23)	114.04 (88.62–142.89)	164.54 (12.88–20.39)	5.34 (4.13–6.74)	7.44 (0.59–0.9)
Qom	0.01 (0–0.05)	0.01 (0–0.01)	5.36 (3.08–8.33)	8 (0.46–1.26)	114.85 (89.07–144.79)	170.4 (13.45–21.26)	5.59 (4.32–7.19)	7.77 (0.63–0.95)
Semnan	0 (0–0.02)	0.01 (0–0.01)	3.28 (1.86–5.16)	8.22 (0.47–1.27)	70.45 (54.21–88.68)	176.4 (13.72–22.03)	3.25 (2.48–4.09)	8.02 (0.64–0.98)
Sistan and Baluchistan	0.01 (0–0.05)	0.01 (0–0.01)	8.43 (4.73–13.78)	7.59 (0.44–1.24)	175.38 (132.61–219.88)	160.15 (12.63–19.97)	9.84 (7.65–12.44)	7.36 (0.6–0.9)
South Khorasan	0.13 (0.08–0.17)	0.32 (0.02–0.04)	6.23 (4.43–8.53)	15.05 (1.08–2.03)	74.81 (59.29–95.23)	176.47 (14.07–22.21)	3.61 (2.91–4.49)	8.16 (0.67–0.99)

Tehran	3.94 (2.07– 5.62)	0.63 (0.03– 0.09)	143.39 (97.41– 183.19)	19.82 (1.31– 2.54)	1299.67 (1012.72– 1659.8)	161.23 (12.67– 20.18)	57.12 (43.48– 72.14)	7.08 (0.56– 0.87)
West Azarbayejan	0.41 (0.29– 0.55)	0.37 (0.03– 0.05)	23.21 (16.35– 31.5)	14.94 (1.09– 1.98)	280.61 (219.73– 352.73)	163.39 (13.05– 20.27)	13.54 (10.61– 16.86)	7.5 (0.6– 0.91)
Yazd	0.14 (0.1– 0.19)	0.33 (0.02– 0.04)	7.47 (5.44– 9.86)	14.2 (1.06– 1.84)	94.38 (75.86– 119.97)	169.3 (13.81– 21.05)	4.57 (3.57– 5.74)	7.69 (0.62– 0.94)
Zanjan	0.13 (0.09– 0.18)	0.27 (0.02– 0.04)	7.4 (5.15– 10.19)	13.42 (0.94– 1.8)	96.75 (74.62– 123.44)	168.38 (13.15– 20.99)	4.44 (3.38– 5.58)	7.59 (0.6– 0.94)

Table S2. Age-standardized incidence, prevalence, ,mortality, and DALY rates of Myeloproliferative and Myelodysplastic Syndromes among males in Iran by province, 2021, based on GBD 2021 estimates.

Province	Mortality		DALY		Prevalence		Incidence	
	Count	ASMR	Count	ASDR	Count	ASPR	Count	ASIR
Iran (Islamic Republic of)	18.65 (6.72–49.75)	0.54 (0.02–0.15)	798.59 (461.91–1495.2)	19.99 (1.14–3.82)	7723.55 (6319.12–9740.5)	176.94 (14.56–21.65)	419.02 (339.58–516.49)	9.54 (0.8–1.14)
Alborz	0.62 (0.23–1.72)	0.55 (0.02–0.15)	28.57 (17.13–53.54)	20.45 (1.16–4.06)	282.1 (217.62–359.21)	178.65 (14.24–22.21)	14.84 (11.72–18.53)	9.47 (0.8–1.13)
Ardebil	0.25 (0.09–0.74)	0.49 (0.02–0.15)	12.16 (7.2–24.09)	20.1 (1.17–4.06)	130 (105.4–163.52)	196.46 (15.95–24.47)	7.18 (5.62–9.09)	10.91 (0.89–1.31)
Bushehr	0.17 (0.07–0.56)	0.43 (0.02–0.15)	9.92 (5.86–20.5)	18.56 (1.11–4.14)	117.17 (92.68–145.39)	195.34 (15.7–24.25)	6.58 (5.32–8.37)	10.7 (0.89–1.29)
Chahar Mahaal and Bakhtiari	0 (0–0)	0 (0–0)	4.65 (2.53–7.26)	9.24 (0.53–1.45)	99.65 (78.53–125.09)	199.57 (16.09–24.69)	5.53 (4.46–6.82)	10.85 (0.9–1.3)
East Azarbayegan	0.72 (0.32–2.51)	0.42 (0.02–0.14)	35.95 (21.08–78.21)	17.5 (1.05–3.94)	389.61 (313.58–497.75)	175.34 (14.3–22.32)	21.36 (17.2–26.82)	9.68 (0.81–1.17)
Fars	0.96 (0.39–3.19)	0.47 (0.02–0.15)	45.62 (26.38–95.77)	18.67 (1.08–4.08)	464.54 (370.63–591.56)	174.13 (13.93–21.89)	25.77 (20.5–32.9)	9.64 (0.81–1.17)
Gilan	0.42 (0.14–1.8)	0.3 (0.01–0.13)	22.33 (11.76–53.42)	14.82 (0.77–3.57)	281.38 (224.66–355.91)	180.66 (14.57–22.51)	14.28 (11.34–17.75)	9.7 (0.81–1.17)

Golestan	0.33 (0.1–0.86)	0.51 (0.02–0.14)	16.88 (8.98–29.3)	19.97 (1.06–3.72)	166.87 (131.89–207.53)	177.45 (14.15–21.7)	9.57 (7.67–11.75)	9.76 (0.81–1.15)
Hamadan	0.71 (0.14–1.2)	0.81 (0.02–0.13)	24.77 (9.57–36.22)	27.66 (1.05–4.02)	166.95 (133.82–209.54)	176.37 (14.25–22.07)	9.07 (7.33–11.27)	9.74 (0.81–1.18)
Hormozgan	0.2 (0.09–0.78)	0.37 (0.02–0.15)	12.78 (7.55–27.02)	16.52 (0.97–3.88)	148.9 (118.22–187.17)	174.22 (14.17–21.97)	8.88 (7.11–11.24)	9.57 (0.8–1.16)
Ilam	0 (0–0)	0 (0–0)	2.99 (1.69–4.69)	9.99 (0.58–1.56)	64.5 (51.47–81.37)	216.69 (17.66–26.74)	3.63 (2.82–4.58)	12.26 (1.01–1.49)
Isfahan	1.84 (0.42–3.45)	0.73 (0.02–0.14)	67.78 (30.87–106.36)	24.82 (1.07–3.89)	520.44 (400.9–656.02)	175.41 (13.75–21.76)	27.49 (21.67–34.07)	9.41 (0.77–1.13)
Kerman	0.69 (0.22–1.76)	0.61 (0.02–0.16)	31.28 (15.89–55.43)	21.68 (1.08–4.16)	283.97 (221.94–362.1)	174.6 (13.95–21.89)	16.25 (13.08–20.57)	9.61 (0.79–1.16)
Kermanshah	0.41 (0.16–1.25)	0.45 (0.02–0.14)	18.43 (10.45–36.27)	18.49 (1.04–3.77)	183.75 (144.06–230.93)	173.5 (13.77–21.73)	10.08 (8.07–12.66)	9.58 (0.79–1.16)
Khorasan-e-Razavi	1.3 (0.45–3.6)	0.52 (0.02–0.15)	60.18 (33.57–112.83)	19.94 (1.1–3.96)	572.83 (449.53–723.65)	173.8 (14.02–21.48)	33.06 (26.54–41.39)	9.66 (0.8–1.16)
Khuzestan	0.78 (0.29–2.18)	0.46 (0.02–0.13)	39.66 (22.2–74.9)	18.76 (1.04–3.71)	402.77 (319.15–502.26)	172.92 (13.99–21.39)	23.09 (18.45–28.61)	9.38 (0.78–1.12)
Kohgiluyeh and Boyer-Ahmad	0 (0–0)	0 (0–0)	3.31 (1.9–5.18)	9.24 (0.54–1.42)	70.46 (56.18–88.64)	198.64 (16.05–24.51)	4.15 (3.33–5.21)	11.27 (0.92–1.34)

Kurdistan	0.34 (0.12–0.98)	0.48 (0.02–0.14)	15.59 (8.99–30.12)	19.25 (1.1–3.84)	155.07 (122.61–193.39)	177.57 (14.05–21.87)	8.53 (6.8–10.55)	9.79 (0.81–1.17)
Lorestan	0.21 (0.09–0.81)	0.35 (0.01–0.14)	12.78 (6.94–28.64)	16.04 (0.87–3.91)	158.97 (125.5–202.16)	183.15 (14.89–22.7)	9.01 (7.21–11.3)	10.05 (0.84–1.2)
Markazi	0.58 (0.13–1.1)	0.77 (0.02–0.15)	19.47 (7.98–29.96)	26.04 (1.06–4.04)	143.89 (113.06–178.62)	182.79 (14.57–22.52)	7.57 (5.96–9.3)	9.95 (0.82–1.18)
Mazandaran	0.67 (0.26–2.27)	0.39 (0.02–0.14)	32.09 (18.8–68.71)	17.03 (1–3.75)	354.77 (283.16–445.49)	177.58 (14.3–21.89)	18.28 (14.49–22.64)	9.46 (0.79–1.13)
North Khorasan	0.2 (0.06–0.46)	0.56 (0.02–0.13)	8.68 (4.46–14.41)	22.08 (1.13–3.8)	80.57 (64.94–101)	192 (15.56–23.8)	4.65 (3.8–5.78)	10.86 (0.9–1.31)
Qazvin	0.26 (0.09–0.75)	0.53 (0.02–0.16)	12.56 (7.16–25.32)	20.38 (1.15–4.31)	132.18 (104.61–165.57)	191.97 (15.54–23.79)	7.21 (5.7–9)	10.45 (0.88–1.25)
Qom	0.18 (0.07–0.72)	0.35 (0.01–0.14)	10.62 (6.05–22.88)	16.49 (0.92–3.75)	128.81 (100.42–164.92)	184.49 (14.7–23.29)	6.94 (5.53–8.73)	9.78 (0.81–1.19)
Semnan	0.19 (0.05–0.44)	0.62 (0.02–0.15)	8.37 (4.27–14.11)	23.15 (1.16–4.02)	81.92 (65.04–102.42)	207 (16.83–25.73)	4.29 (3.42–5.38)	11.32 (0.93–1.36)
Sistan and Baluchistan	0.28 (0.1–0.85)	0.35 (0.01–0.12)	18.3 (10.74–32.57)	16.6 (1–3.42)	190.69 (148.18–239.16)	166.41 (13.1–20.71)	12.72 (10.11–15.82)	9.26 (0.77–1.12)
South Khorasan	0.31 (0.06–0.48)	0.85 (0.02–0.13)	11.15 (4.35–15.57)	28.31 (1.1–3.94)	81.83 (66.07–101.39)	195.32 (15.85–24.19)	4.64 (3.8–5.72)	10.91 (0.9–1.3)

Tehran	5.28 (1.87– 14.74)	0.73 (0.03– 0.2)	167.67 (95.77– 363.61)	22.4 (1.29– 4.88)	1352.92 (1085.67–1692.7)	169.41 (13.76– 21.05)	65.5 (51.11– 81.34)	8.46 (0.71– 1.02)
West Azarbayejan	0.75 (0.2– 1.65)	0.65 (0.02– 0.15)	34.1 (17.05– 56.36)	22.62 (1.05– 3.82)	301.41 (236.12– 383.85)	176.55 (14– 22.3)	17.16 (13.55– 21.5)	9.74 (0.8– 1.19)
Yazd	0 (0–0)	0 (0–0)	5.04 (2.92– 8.25)	8.49 (0.5– 1.35)	107.94 (85.88– 135.16)	183.07 (14.77– 22.91)	5.93 (4.78–7.4)	9.82 (0.83– 1.19)
Zanjan	0 (0–0)	0 (0–0)	4.95 (2.84– 7.75)	8.84 (0.51– 1.36)	106.68 (83.74– 136.27)	191.05 (15.35– 24.27)	5.77 (4.64– 7.33)	10.4 (0.86– 1.26)

Table S3. ARIMAX model results for MDS/MPN mortality rates in Iran by sex, 2022–2030. Models include temporal trends (linear or spline) and pandemic adjustment, with ARIMA errors selected via AICc.

Parameter	Both Sexes	Female	Male
Model Specification			
ARIMA Order (p,d,q)	(2,0,0)	(2,0,0)	(2,0,0)
Coefficients			
Pandemic	-0.0313 (0.0043)	-0.0228 (0.0038)	-0.0407 (0.0055)
Calendar year	0.0029 (0.0007)	0.0038 (0.0012)	0.0030 (0.0003)
Intercept	0.4305 (0.0135)	0.3388 (0.0266)	0.5028 (0.0039)
AR1	1.3898 (0.1806)	1.6079 (0.1439)	1.0915 (0.2298)
AR2	-0.4739 (0.1844)	-0.6503 (0.1448)	-0.4601 (0.2152)
Model Fit			
σ^2 (Residual Variance)	2.101×10^{-5}	2.231×10^{-5}	1.924×10^{-5}
AIC	-244.58	-241.29	-248.81
AICc	-241.22	-237.93	-245.45
BIC	-235.78	-232.49	-240.01
Training Set Errors			
ME	0.000418	0.000425	-0.000058
RMSE	0.00421	0.004338	0.004029
MAE	0.002737	0.002834	0.002068
MAPE (%)	0.5634	0.6878	0.3673
MASE	0.5015	0.4883	0.3983
Residual Diagnostics			
Ljung-Box Q* (df)	4.5307 (4)	6.6326 (4)	7.4553 (4)
Ljung-Box p-value	0.3389	0.1566	0.1137
ACF1	-0.1258	-0.2252	-0.0884

Note: External regressors included in the ARIMAX models were calendar year, spline terms to account for nonlinear temporal trends, and a binary pandemic indicator for the COVID-19 period (2020–2021)

Table S4. ARIMAX model results for MDS/MPN DALY rates in Iran by sex, 2022–2030. Models include temporal trends (linear or spline) and pandemic adjustment, with ARIMA errors selected via AICc.

Parameter	Both Genders	Female	Male
Model Specification			

ARIMA Order (p,d,q)	(0,1,0)	(0,1,1)	(0,1,0)
Coefficients			
Pandemic	-0.8027 (0.0858)	-0.6556 (0.0745)	-0.9105 (0.1006)
Spline term 1	0.4028 (0.3984)	0.8032 (0.6094)	0.3666 (0.4673)
Spline term 2	4.6496 (0.6157)	6.5188 (0.9367)	2.7791 (0.7221)
Spline term 3	-4.4361 (0.3553)	-4.6158 (0.5427)	-3.9264 (0.4166)
MA1	—	0.4866 (0.1990)	—
Model Fit			
σ^2 (Residual Variance)	0.006364	0.007248	0.008752
AIC	-63.14	-57.99	-53.26
AICc	-60.74	-54.49	-50.86
BIC	-55.97	-49.39	-46.09
Training Set Errors			
ME	0.000594	0.001295	0.00068
RMSE	0.073277	0.076738	0.085934
MAE	0.05664	0.058778	0.061741
MAPE (%)	0.2686	0.3142	0.2652
MASE	0.1927	0.1805	0.2413
Residual Diagnostics			
Ljung-Box Q* (df)	5.0377 (6)	3.9444 (5)	4.4690 (6)
Ljung-Box p-value	0.539	0.5574	0.6135
ACF1	0.1978	-0.0188	0.2102

Note: External regressors included in the ARIMAX models were calendar year, spline terms to account for nonlinear temporal trends, and a binary pandemic indicator for the COVID-19 period (2020–2021)

Table S5. ARIMAX model results for MDS/MPN incidence rates in Iran by sex, 2022–2030. Models include temporal trends (linear or spline) and pandemic adjustment, with ARIMA errors selected via AICc.

Parameter	Both Sexes	Female	Male
Model Specification			
ARIMA Order (p,d,q)	(3,1,0)	(3,1,0)	(2,1,1)
Coefficients			
pandemic	-0.0574 (0.0101)	-0.0778 (0.0103)	-0.0326 (0.0112)
Spline Term 1	-1.8631 (0.8799)	-1.0084 (1.2920)	-2.4664 (0.7726)
Spline Term 2	1.4802 (1.3296)	1.8307 (1.9367)	1.3495 (1.1353)
Spline Term 3	-4.0183 (0.7861)	-2.8253 (1.1354)	-4.8450 (0.6806)
AR1	1.7584 (0.1433)	1.9100 (0.1529)	1.1392 (0.1684)
AR2	-1.4424 (0.2276)	-1.4908 (0.2580)	-0.4359 (0.1736)
AR3	0.5803 (0.1472)	0.4972 (0.1557)	—

MA1	—	—	0.9684 (0.2472)
Model Fit			
σ^2 (Residual Variance)	0.0005114	0.0006144	0.0006256
AIC	-135.59	-129.33	-127.04
AICc	-129.04	-122.78	-120.5
BIC	-124.11	-117.86	-115.57
Training Set Errors			
ME	0.001916	0.00265	0.000291
RMSE	0.019584	0.021466	0.021662
MAE	0.016395	0.016044	0.016005
MAPE (%)	0.158	0.1823	0.1355
MASE	0.0861	0.0948	0.0759
Residual Diagnostics			
Ljung-Box Q* (df)	4.7714 (3)	2.3545 (3)	6.7600 (3)
Ljung-Box p-value	0.1893	0.5022	0.07995
ACF1	0.1215	0.0886	0.0815

Note: External regressors included in the ARIMAX models were calendar year, spline terms to account for nonlinear temporal trends, and a binary pandemic indicator for the COVID-19 period (2020–2021)

Table S6. ARIMAX model results for MDS/MPN prevalence rates in Iran by sex, 2022–2030. Models include temporal trends (linear or spline) and pandemic adjustment, with ARIMA errors selected via AICc.

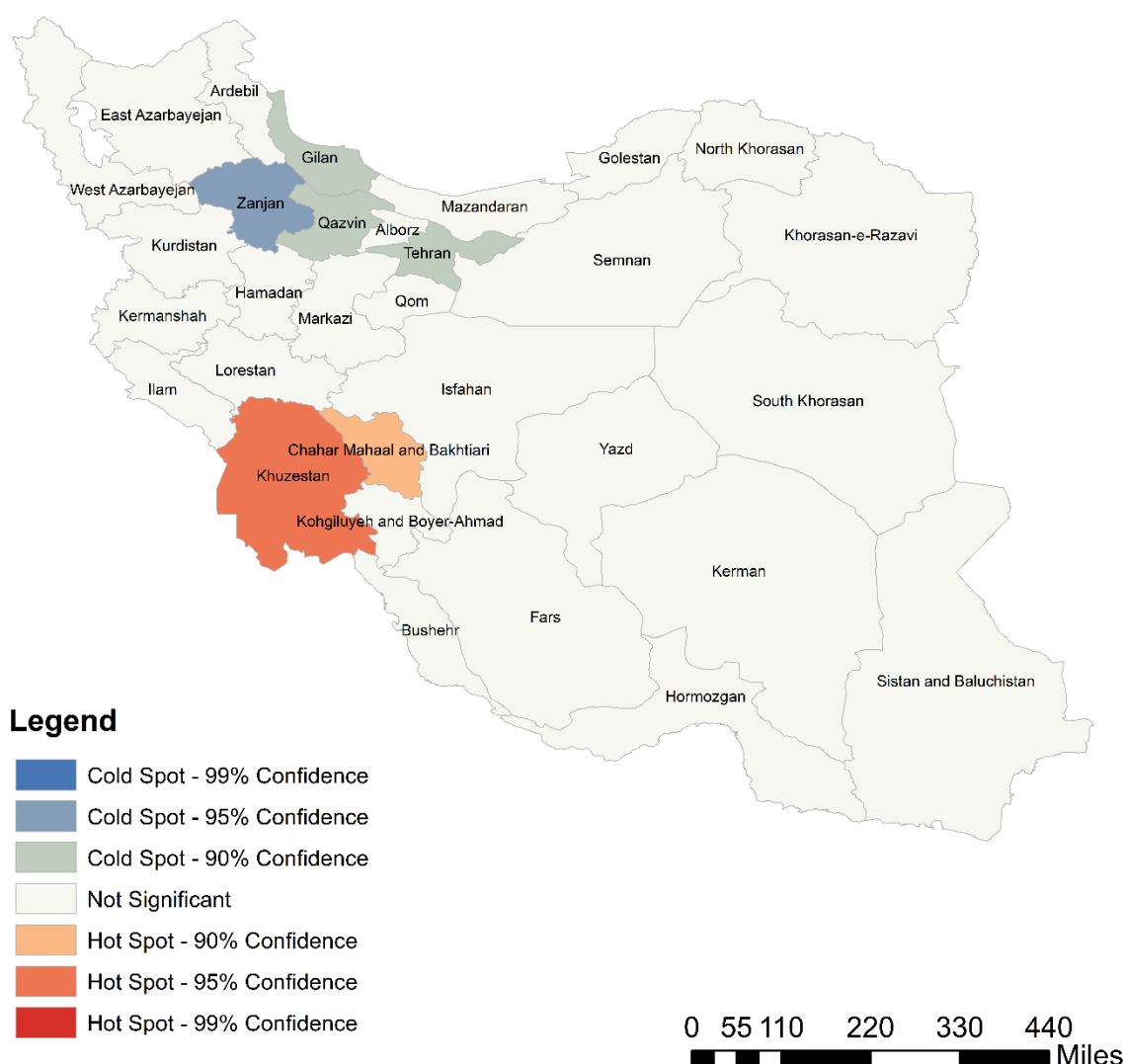
Parameter	Both Sexes	Female	Male
Model Specification			
ARIMA Order (p,d,q)	(1,1,2)	(3,1,0)	(2,1,1)
Coefficients			
pandemic	-0.802 (0.1870)	-1.1613 (0.2330)	-0.2924 (0.1896)
Spline Term 1	-42.5175 (27.5293)	-29.1547 (32.7435)	-43.7122 (21.1101)
Spline Term 2	37.2644 (40.5741)	46.6887 (48.7684)	35.8424 (29.4070)
Spline Term 3	-87.5369 (24.6234)	-74.9684 (28.6546)	-92.3362 (18.2321)
AR1	0.8095 (0.1195)	1.9846 (0.1538)	1.2936 (0.1609)
AR2	—	-1.5673 (0.2654)	-0.4859 (0.1670)
AR3	—	0.5052 (0.1586)	—
MA1	1.4533 (0.3836)	—	0.8956 (0.1252)
MA2	0.4650 (0.1987)	—	—
Model Fit			
σ^2 (Residual Variance)	0.1812	0.3291	0.2028
AIC	50.02	65.84	51.73
AICc	56.57	72.38	58.28
BIC	61.49	77.31	63.21
Training Set Errors			
ME	0.0411	0.0603	0.0167

RMSE	0.3686	0.4968	0.3899
MAE	0.2794	0.3858	0.2743
MAPE (%)	0.1332	0.1927	0.1251
MASE	0.0634	0.0868	0.0633
Residual Diagnostics			
Ljung-Box Q* (df)	4.3185 (3)	2.3759 (3)	6.1148 (3)
Ljung-Box p-value	0.2291	0.4981	0.1062
ACF1	0.043	0.0778	0.074

Note: External regressors included in the ARIMAX models were calendar year, spline terms to account for nonlinear temporal trends, and a binary pandemic indicator for the COVID-19 period (2020–2021)



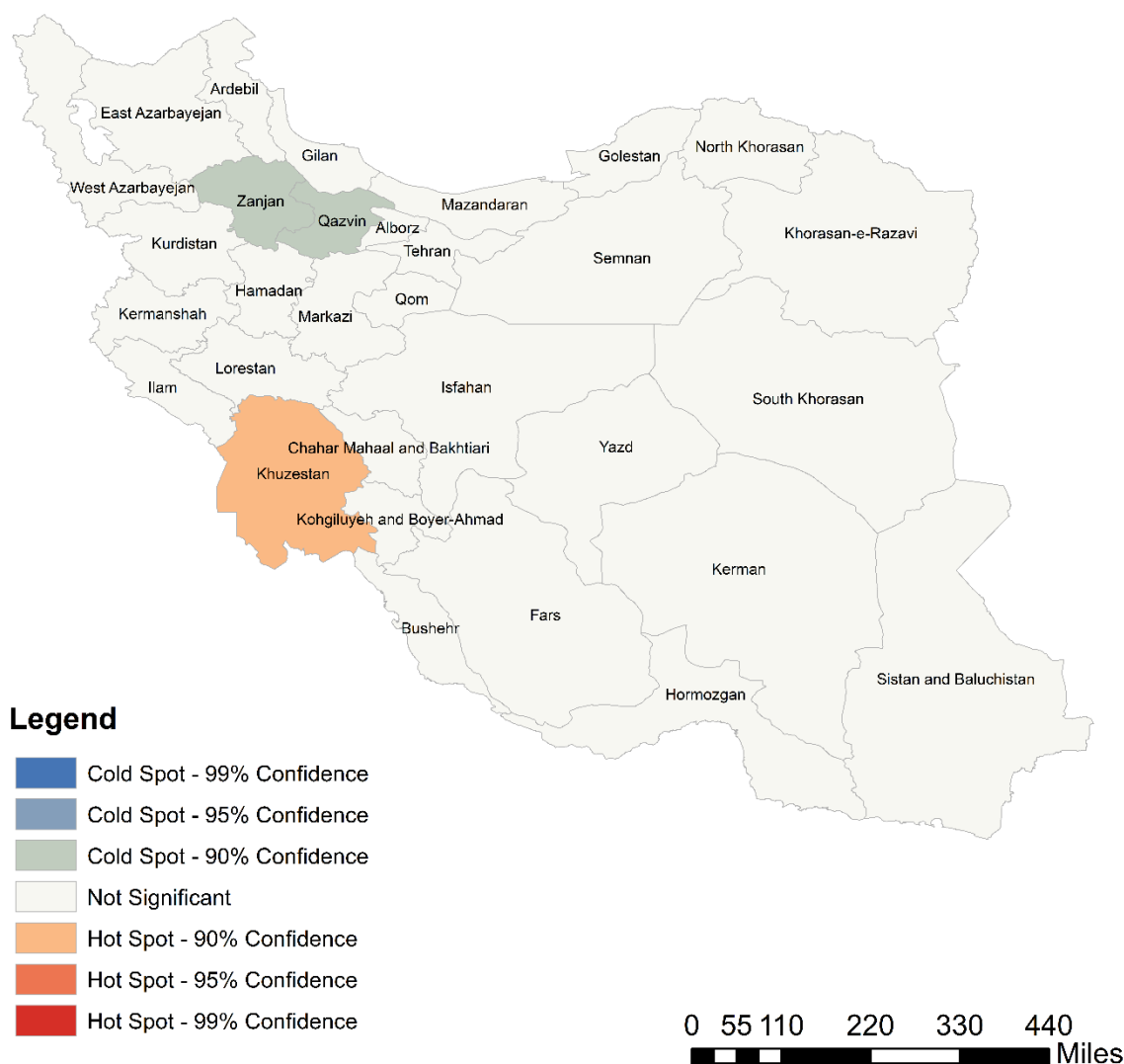
Hotspot Analysis of Lower Limit Incidence



Supplementary Figure S1. Hotspot analysis (Getis-Ord G_i^*) for age-standardized incidence of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% lower uncertainty bound.



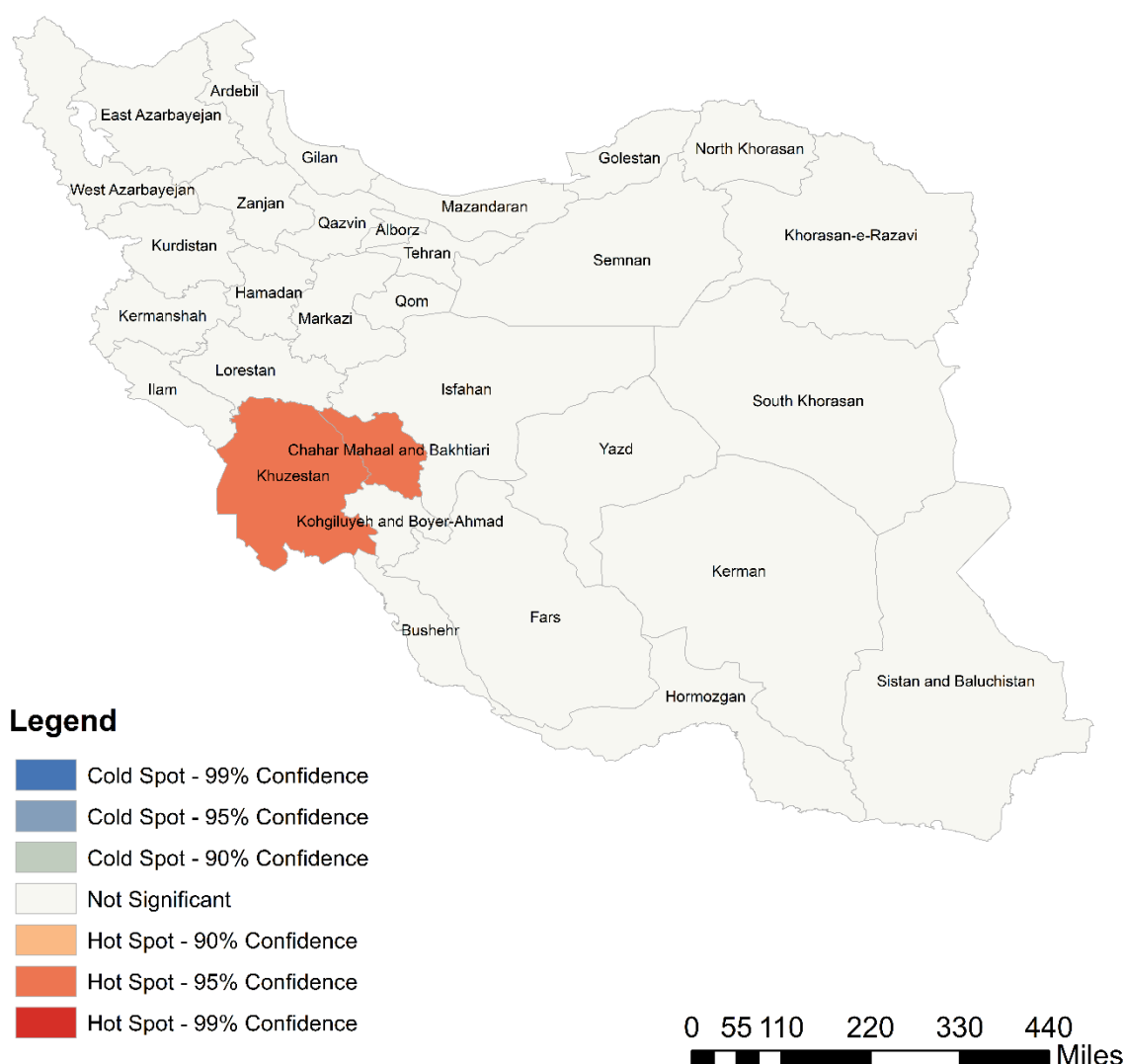
Hotspot Analysis of Upperr Limit Incidence



Supplementary Figure S2. Hotspot analysis (Getis-Ord G_i^*) for age-standardized incidence of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% upper uncertainty bound.



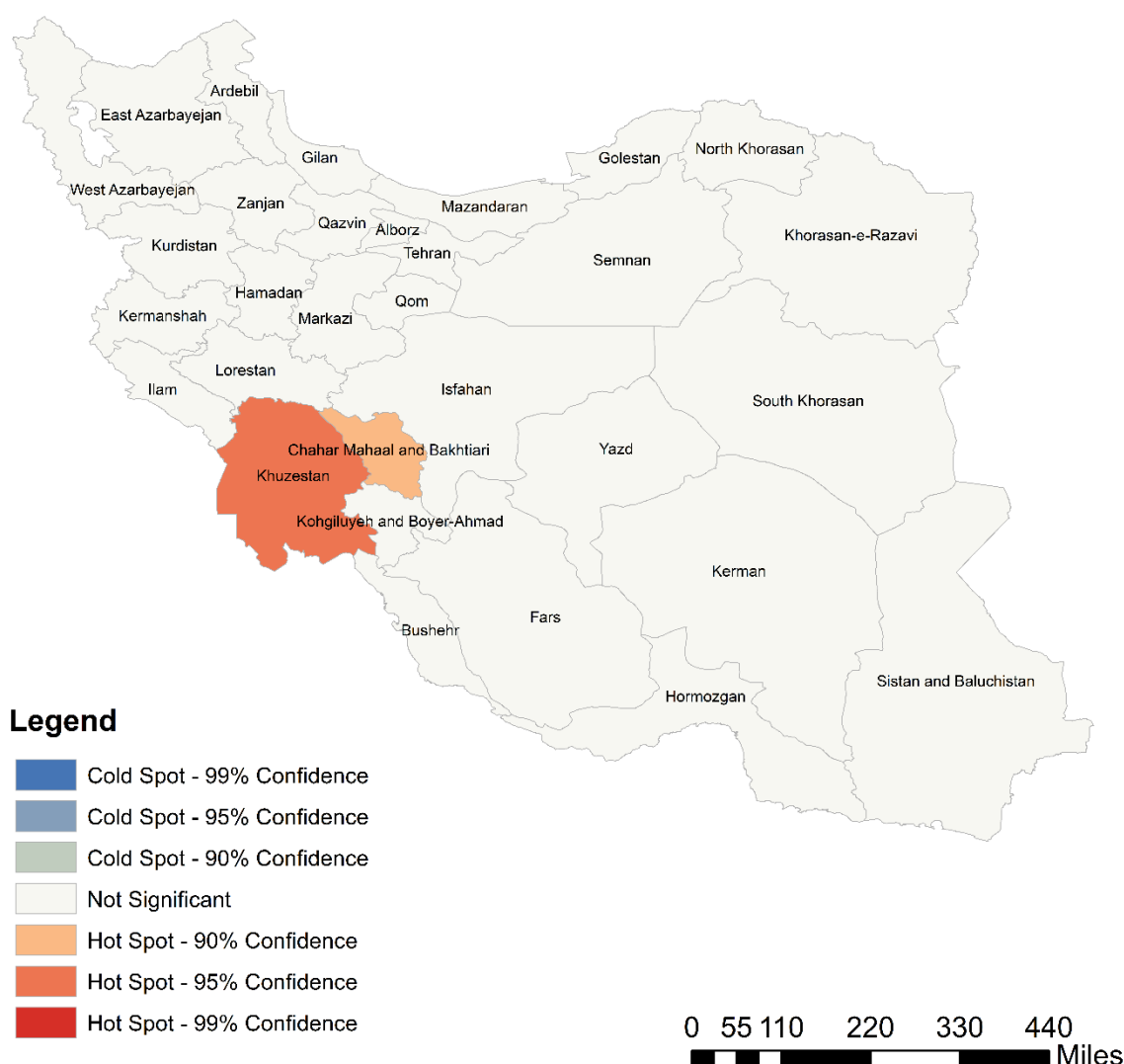
Hotspot Analysis of Lower Limit Prevalence



Supplementary Figure S3. Hotspot analysis (Getis-Ord G_i^*) for age-standardized prevalence of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% lower uncertainty bound.



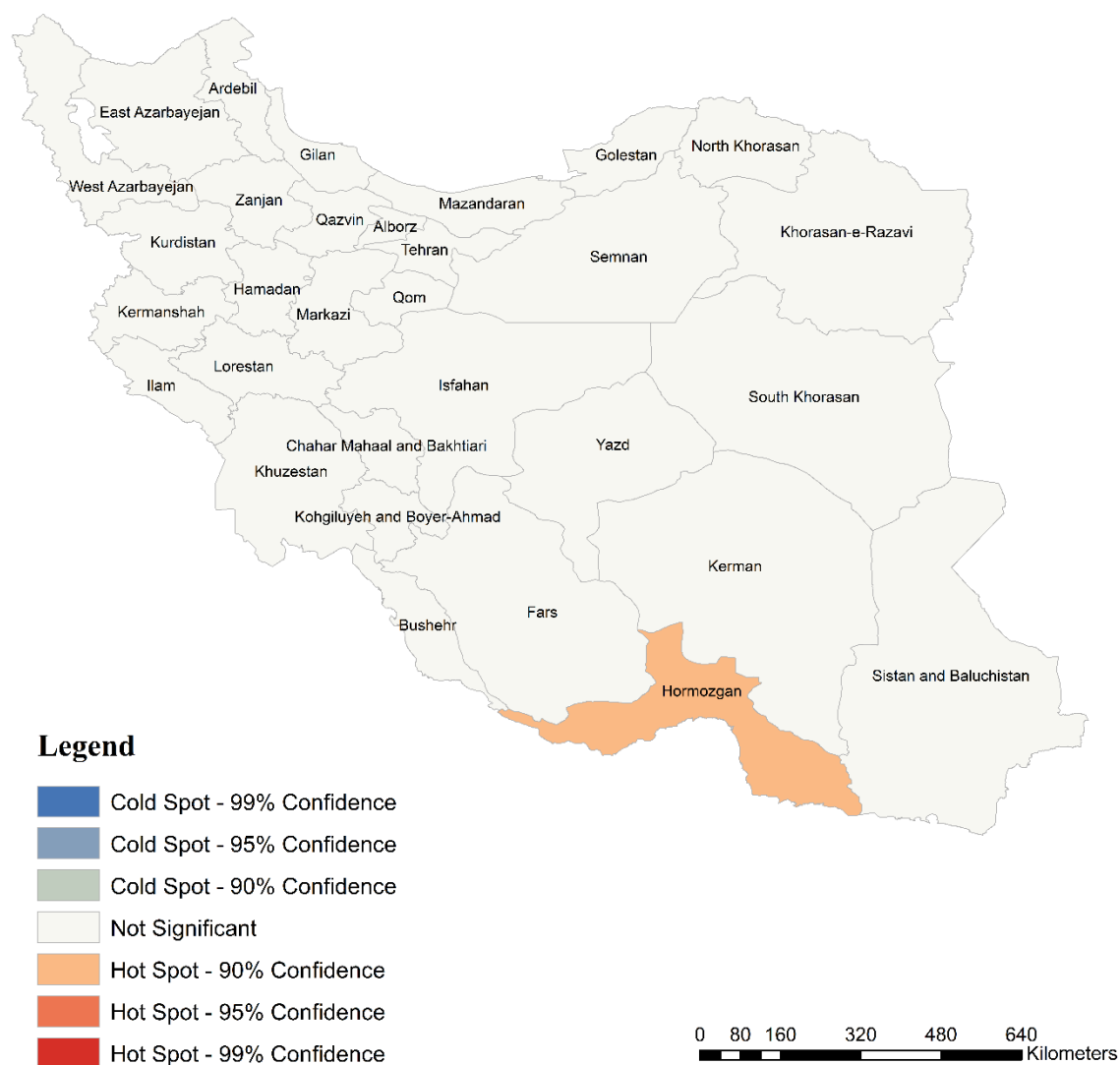
Hotspot Analysis of Upper Limit Prevalence



Supplementary Figure S4. Hotspot analysis (Getis-Ord G_i^*) for age-standardized prevalence of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% upper uncertainty bound.



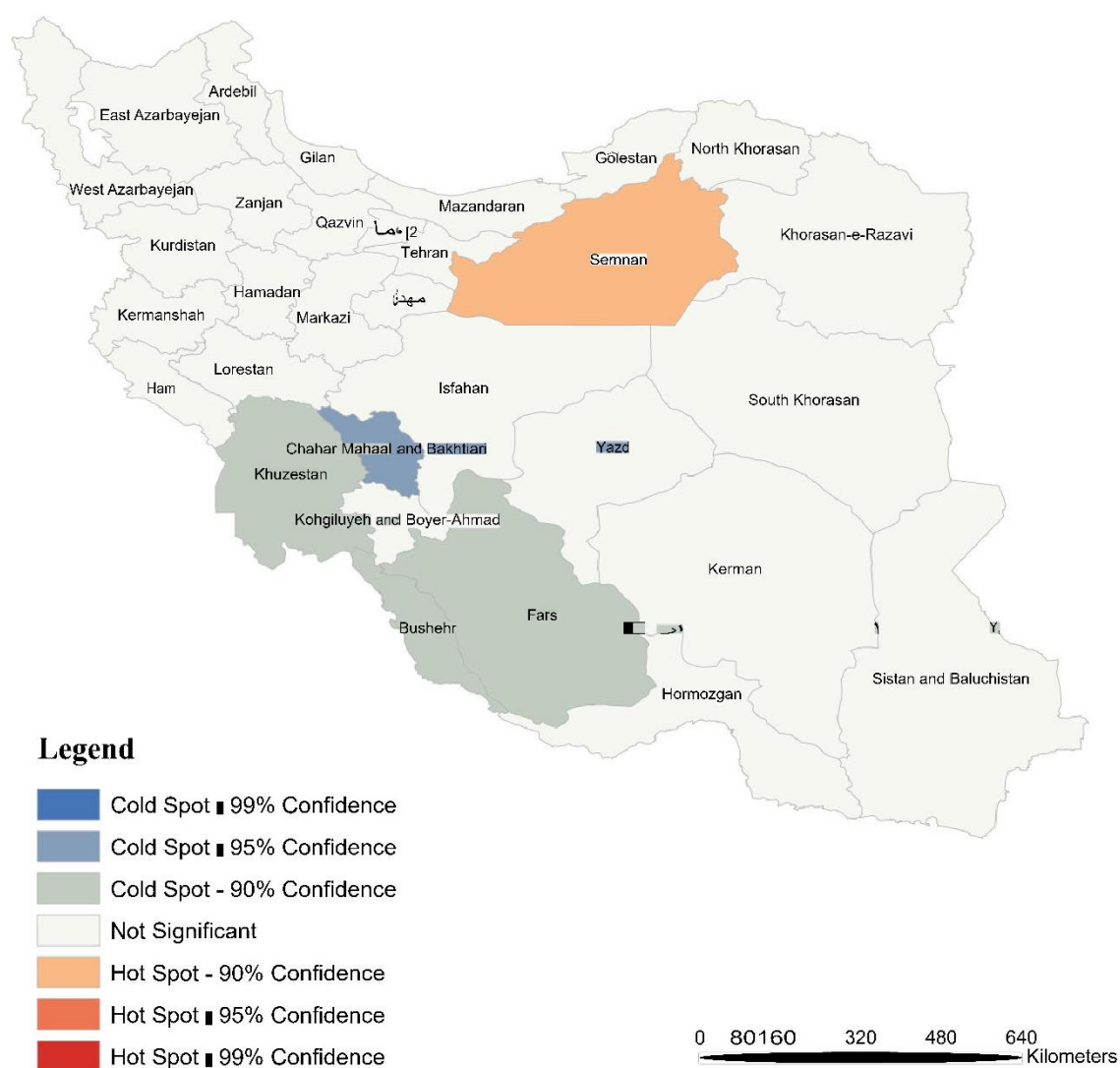
Hotspot Analysis of Lower Limit Mortality



Supplementary Figure S5. Hotspot analysis (Getis-Ord G_i^*) for age-standardized mortality of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% lower uncertainty bound.



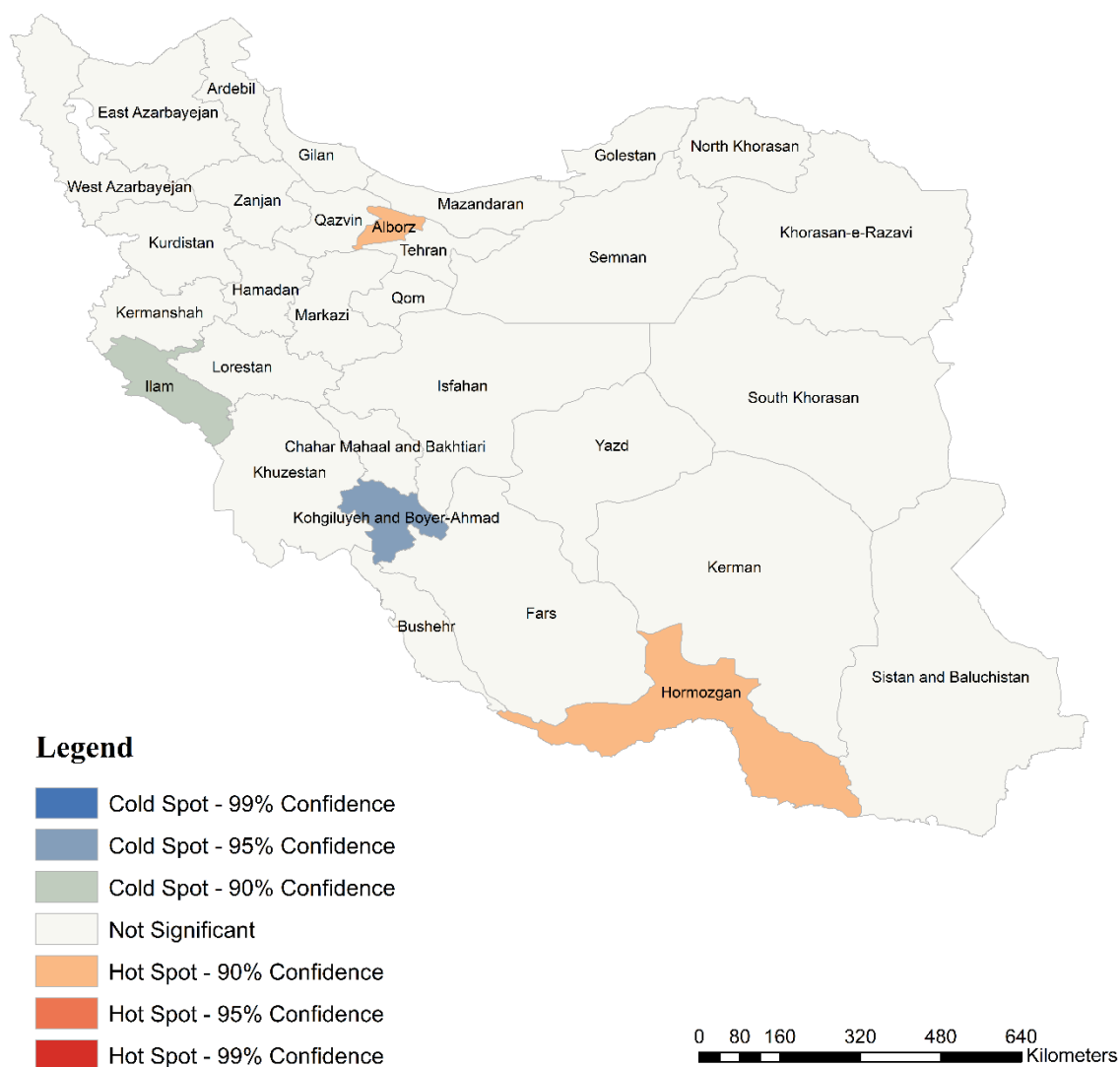
Hotspot Analysis of Upper Limit Mortality



Supplementary Figure S6. Hotspot analysis (Getis-Ord G_i^*) for age-standardized mortality of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% upper uncertainty bound.



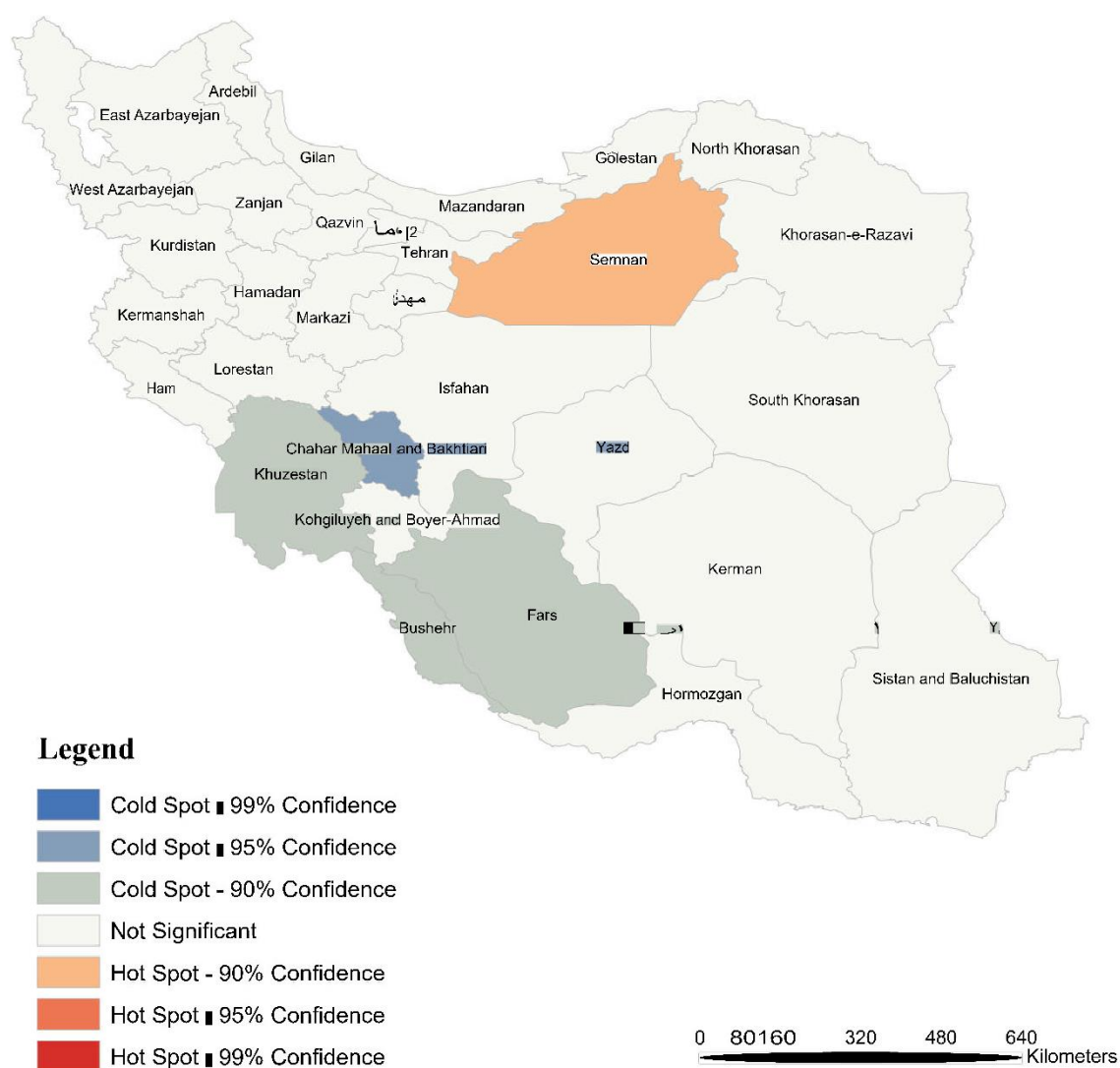
Hot spot Analysis of Lower Limit DALY



Supplementary Figure S7. Hotspot analysis (Getis-Ord G_i^*) for age-standardized disability-adjusted life years (DALYs) of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% lower uncertainty bound.



Hotspot Analysis of Upper Limit Mortality



Supplementary Figure S8. Hotspot analysis (Getis-Ord G_i^*) for age-standardized disability-adjusted life years (DALYs) of Myelodysplastic and Myeloproliferative Syndromes (MDS/MPN) in Iran, 2021, using the 95% upper uncertainty bound.