

Supplement 1. Characteristics of the population regarding violence against transgender people, Brazil, 2015–2023

	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
Sex									
Male	1,187 (37.9)	1,464 (34.6)	1,571 (38.6)	1,881 (39.7)	1,971 (40.3)	1,759 (41.1)	2,027 (40.2)	2,545 (40.3)	3,560 (39.4)
Female	1,944 (62.1)	2,768 (65.4)	2,493 (61.2)	2,850 (60.2)	2,894 (59.2)	2,508 (58.7)	2,997 (59.5)	3,747 (59.4)	5,424 (60.1)
Missing / Not reported	1 (0.0)	0 (0.0)	8 (0.2)	5 (0.1)	22 (0.5)	10 (0.2)	16 (0.3)	21 (0.3)	42 (0.5)
Gender Identity									
Travesti	339 (10.8)	474 (11.2)	603 (14.8)	728 (15.4)	771 (15.8)	689 (16.1)	701 (13.9)	875 (13.9)	1,143 (12.7)
Transgender woman	2,180 (69.6)	2,938 (69.4)	2,673 (65.7)	3,187 (67.3)	3,214 (65.8)	2,783 (65.1)	3,303 (65.5)	4,020 (63.7)	5,551 (61.5)
Transgender man	613 (19.6)	820 (19.4)	796 (19.5)	821 (17.3)	902 (18.4)	805 (18.8)	1,036 (20.6)	1,418 (22.4)	2,332 (25.8)
Sexual Orientation									
Heterosexual	1,901 (60.7)	2,825 (66.8)	2,327 (57.2)	2,476 (52.3)	2,465 (50.4)	2,191 (51.2)	2,567 (50.9)	3,099 (49.1)	4,486 (49.7)
Homosexual	683 (21.8)	844 (19.9)	1,117 (27.5)	1,525 (32.2)	1,524 (31.2)	1,269 (29.7)	1,460 (29.0)	1,889 (29.9)	2,560 (28.4)
Bisexual	47 (1.5)	60 (1.4)	71 (1.7)	88 (1.8)	132 (2.7)	141 (3.3)	220 (4.4)	297 (4.7)	501 (5.6)
Not applicable	119 (3.8)	115 (2.7)	132 (3.2)	160 (3.4)	186 (3.8)	169 (4.0)	213 (4.2)	218 (3.5)	305 (3.3)
Missing / Not reported	382 (12.2)	388 (9.2)	425 (10.4)	487 (10.3)	580 (11.9)	507 (11.8)	580 (11.5)	810 (12.8)	1,174 (13.0)
Age Group									
≤ 18 years	614 (19.6)	867 (20.5)	836 (20.5)	1,004 (21.2)	1,033 (21.1)	843 (19.8)	1,050 (20.8)	1,473 (23.4)	2,018 (22.4)
19–29 years	1,029 (32.9)	1,332 (31.5)	1,446 (35.5)	1,671 (35.3)	1,835 (37.5)	1,606 (37.6)	1,919 (38.1)	2,331 (36.9)	3,330 (36.9)
30–39 years	713 (22.8)	899 (21.2)	891 (21.9)	994 (21.0)	1,050 (21.5)	904 (21.1)	1,035 (20.5)	1,254 (19.9)	1,796 (19.9)
40–49 years	398 (12.7)	537 (12.7)	493 (12.1)	569 (12.0)	502 (10.3)	510 (11.9)	578 (11.5)	701 (11.1)	1,070 (11.9)
50–59 years	197 (6.3)	220 (5.2)	203 (5.0)	265 (5.6)	248 (5.1)	220 (5.1)	257 (5.1)	331 (5.2)	392 (4.3)
≥ 60 years	181 (5.7)	377 (8.9)	203 (5.0)	233 (4.9)	219 (4.5)	194 (4.5)	201 (4.0)	223 (3.5)	420 (4.6)
Race / Skin Color									
White	1,197 (38.2)	1,504 (35.5)	1,620 (39.8)	1,828 (38.6)	1,856 (38.0)	1,677 (39.2)	1,948 (38.7)	2,376 (37.6)	3,551 (39.3)

Black	300 (9.6)	379 (9.0)	389 (9.6)	484 (10.2)	472 (9.6)	434 (10.1)	551 (10.9)	638 (10.1)	1,016 (11.3)
Yellow	25 (0.8)	28 (0.7)	27 (0.6)	43 (0.9)	41 (0.8)	40 (0.9)	44 (0.9)	61 (1.0)	82 (0.9)
Mixed-race	1,255 (40.1)	2,018 (47.7)	1,791 (44.0)	2,117 (44.8)	2,197 (45.0)	1,881 (44.1)	2,220 (44.0)	2,875 (45.5)	4,017 (44.5)
Indigenous	54 (1.7)	52 (1.2)	40 (1.0)	59 (1.2)	76 (1.6)	47 (1.1)	56 (1.1)	67 (1.1)	119 (1.3)
Missing / Not reported	301 (9.6)	251 (5.9)	205 (5.0)	205 (4.3)	245 (5.0)	198 (4.6)	221 (4.4)	296 (4.7)	241 (2.7)
Educational Attainment									
Incomplete primary education (1-8 years)	1,021 (32.6)	1,199 (28.3)	1,113 (27.4)	1,243 (26.3)	1,205 (24.7)	1,013 (23.8)	1,069 (21.2)	1,204 (19.1)	1,717 (19.0)
Completed primary education (8 years)	214 (6.8)	256 (6.0)	331 (8.1)	347 (7.3)	332 (6.8)	302 (7.1)	336 (6.6)	457 (7.2)	714 (7.9)
Incomplete secondary education (9-11 years)	334 (10.7)	440 (10.4)	497 (12.2)	625 (13.2)	639 (13.1)	581 (13.6)	709 (14.1)	924 (14.6)	1,249 (13.8)
Completed secondary education (12 years)	426 (13.6)	562 (13.3)	712 (17.5)	793 (16.7)	934 (19.1)	819 (19.1)	1,043 (20.7)	1,336 (21.2)	2,185 (24.3)
Some higher education (12-15 years)	66 (2.1)	104 (2.5)	124 (3.0)	159 (3.4)	184 (3.8)	143 (3.3)	187 (3.7)	248 (3.9)	398 (4.4)
Completed higher education (15 years)	58 (1.9)	91 (2.2)	109 (2.7)	134 (2.8)	149 (3.0)	130 (3.0)	154 (3.1)	193 (3.1)	386 (4.3)
Missing / Not reported	1,013 (32.3)	1,580 (37.3)	1,186 (29.1)	1,435 (30.3)	1,444 (29.5)	1,289 (30.1)	1,542 (30.6)	1,951 (30.9)	2,377 (26.3)
Marital Status									
Single	1,576 (50.3)	2,113 (49.9)	2,082 (51.1)	2,511 (53.0)	2,797 (57.2)	2,458 (57.5)	2,859 (56.7)	3,765 (59.6)	5,581 (61.8)
Married / Civil Union	1,089 (34.8)	1,385 (32.7)	1,338 (32.9)	1,537 (32.5)	1,391 (28.5)	1,257 (29.4)	1,412 (28.0)	1,654 (26.2)	2,165 (24.0)
Widowed	72 (2.3)	105 (2.5)	64 (1.6)	72 (1.5)	63 (1.3)	46 (1.1)	58 (1.2)	77 (1.2)	91 (1.0)
Separated / Divorced	145 (4.6)	227 (5.4)	177 (4.3)	194 (4.1)	186 (3.8)	130 (3.0)	191 (3.8)	187 (3.0)	305 (3.4)
Missing / Not reported	250 (8.0)	402 (9.5)	411 (10.1)	422 (8.9)	450 (9.2)	386 (9.0)	520 (10.3)	630 (10.0)	884 (9.8)
Disability or Disorder									
Yes	234 (7.5)	338 (8.0)	421 (10.4)	568 (12.0)	741 (15.2)	663 (15.5)	835 (16.5)	1,107 (17.5)	1,631 (18.1)
No	2,719 (86.8)	3,624 (85.6)	3,377 (82.9)	3,812 (80.5)	3,811 (78.0)	3,305 (77.3)	3,799 (75.4)	4,691 (74.3)	6,792 (75.2)
Missing / Not reported	179 (5.7)	270 (6.4)	274 (6.7)	356 (7.5)	335 (6.8)	309 (7.2)	406 (8.1)	515 (8.2)	603 (6.7)
Total	3,132 (100)	4,232 (100)	4,072 (100)	4,736 (100)	4,887 (100)	4,277 (100)	5,040 (100)	6,313 (100)	9,026 (100)

Source: the authors.

Supplement 2. Characteristics of violence against transgender people, Brazil, 2015-2023

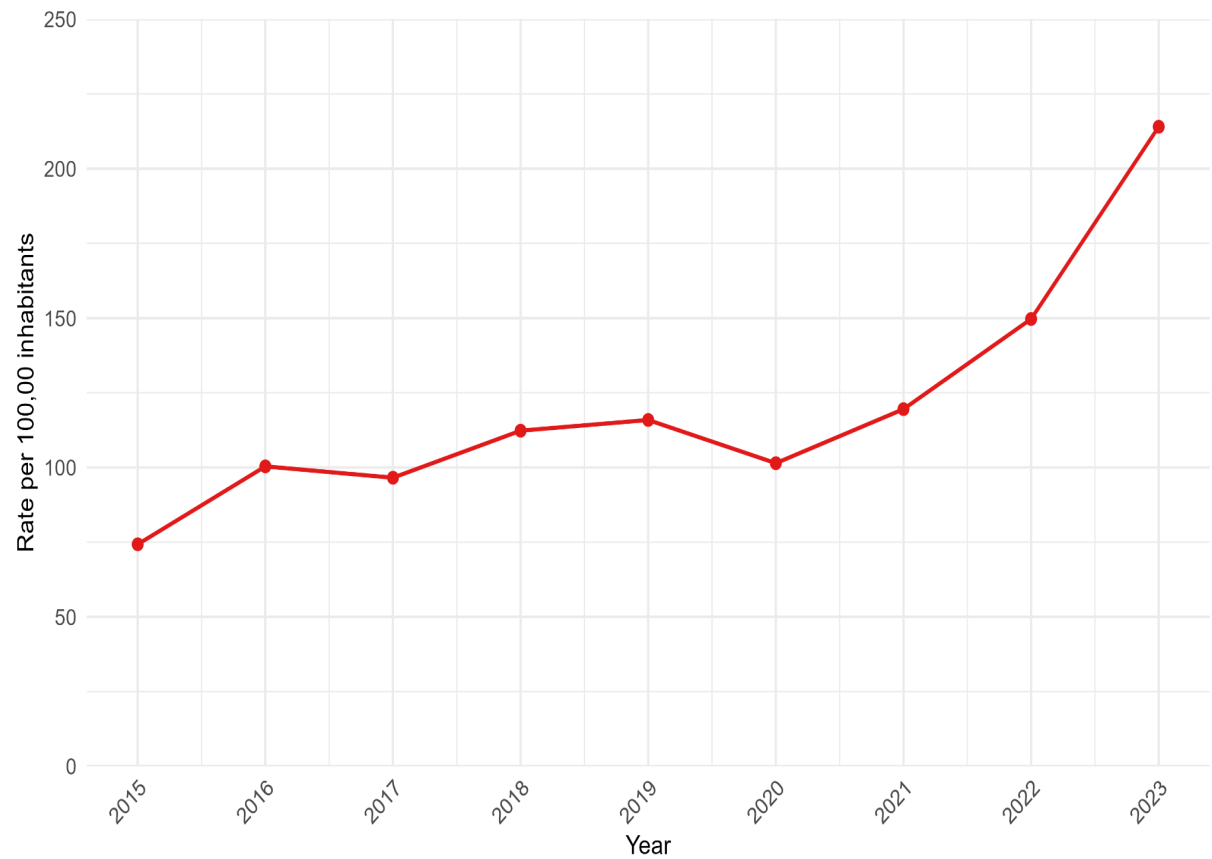
	2015 n (%)	2016 n (%)	2017 n (%)	2018 n (%)	2019 n (%)	2020 n (%)	2021 n (%)	2022 n (%)	2023 n (%)
Type of Violence									
Physical									
Yes	2,546 (81.3)	3,384 (80.0)	3,144 (77.2)	3,259 (69.8)	3,382 (69.2)	2,921 (68.3)	2,969 (58.9)	3,689 (54.8)	4,852 (53.8)
No	565 (18.0)	824 (19.5)	896 (22.0)	1,448 (30.6)	1,477 (30.2)	1,334 (31.2)	2,044 (40.6)	2,576 (40.8)	4,107 (45.5)
Missing / Not reported	21 (0.7)	24 (0.6)	32 (0.8)	29 (0.6)	28 (0.6)	22 (0.5)	27 (0.5)	48 (0.8)	67 (0.7)
Psychological/Emotional									
Yes	1,063 (33.9)	1,272 (30.0)	1,140 (28.0)	1,211 (25.6)	1,139 (23.3)	1,036 (24.2)	1,116 (22.1)	1,330 (21.1)	1,904 (21.1)
No	1,986 (63.4)	2,887 (68.2)	2,839 (69.7)	3,448 (72.8)	3,676 (75.2)	3,178 (74.3)	3,835 (76.1)	4,876 (77.2)	6,968 (77.2)
Missing / Not reported	83 (2.7)	73 (1.7)	93 (2.3)	77 (1.6)	72 (1.5)	63 (1.5)	89 (1.8)	107 (1.7)	154 (1.7)
Torture									
Yes	169 (5.4)	194 (4.6)	181 (4.4)	175 (3.7)	177 (3.6)	154 (3.6)	141 (2.8)	183 (2.9)	224 (2.5)
No	2,873 (91.7)	2,953 (69.8)	3,791 (93.1)	4,480 (94.6)	4,620 (94.6)	4,038 (94.4)	3,789 (75.2)	5,987 (94.8)	8,602 (95.3)
Missing / Not reported	90 (2.9)	85 (2.0)	100 (2.5)	81 (1.7)	90 (1.8)	85 (2.0)	110 (2.0)	143 (2.3)	200 (2.2)
Sexual									
Yes	249 (8.0)	435 (10.3)	338 (8.3)	426 (9.0)	422 (8.6)	393 (9.2)	531 (10.5)	637 (10.1)	960 (10.6)
No	2,807 (89.6)	3,718 (87.8)	3,647 (89.6)	4,237 (89.5)	4,388 (89.8)	3,802 (88.9)	4,414 (87.6)	5,555 (88.0)	7,885 (87.4)
Missing / Not reported	76 (2.4)	79 (1.9)	87 (2.1)	73 (1.5)	77 (1.6)	82 (1.9)	95 (1.9)	121 (1.9)	181 (2.0)
Human trafficking									
Yes	2 (0.1)	7 (0.2)	8 (0.2)	1 (0.0)	1 (0.0)	3 (0.1)	2 (0.0)	2 (0.0)	8 (0.1)
No	3,043 (97.2)	4,144 (97.9)	3,971 (97.5)	4,656 (98.3)	4,800 (98.2)	4,193 (98.0)	4,937 (98.0)	6,168 (97.7)	8,820 (97.7)
Missing / Not reported	87 (2.8)	81 (1.9)	93 (2.3)	79 (1.7)	86 (1.8)	81 (1.9)	101 (2.0)	143 (2.3)	198 (2.2)
Financial/Economic									
Yes	47 (1.5)	83 (2.0)	64 (1.6)	75 (1.6)	53 (1.1)	64 (1.5)	82 (1.6)	91 (1.4)	121 (1.3)

No	2,993 (95.6)	4,068 (96.1)	3,912 (96.0)	4,581 (96.7)	4,744 (97.1)	4,127 (96.5)	4,854 (96.3)	6,082 (96.4)	8,706 (96.5)
Missing / Not reported	92 (2.9)	81 (1.9)	96 (2.4)	80 (1.7)	90 (1.8)	86 (2.0)	104 (2.1)	140 (2.2)	199 (2.2)
Neglect/Abandonment									
Yes	88 (2.8)	234 (5.5)	108 (2.7)	90 (1.9)	109 (2.2)	98 (2.3)	113 (2.2)	186 (2.9)	238 (2.6)
No	2,955 (94.3)	3,917 (92.6)	3,872 (95.0)	4,567 (96.4)	4,690 (96.0)	4,094 (95.7)	4,826 (95.8)	5,984 (94.8)	8,603 (95.4)
Missing / Not reported	89 (2.8)	81 (1.9)	92 (2.3)	79 (1.7)	88 (1.8)	85 (2.0)	101 (2.0)	143 (2.3)	185 (2.0)
Child labor									
Yes	1 (0.0)	7 (0.2)	8 (0.2)	7 (0.1)	6 (0.1)	18 (0.4)	13 (0.3)	7 (0.1)	15 (0.2)
No	3,045 (97.2)	4,144 (97.9)	3,971 (97.5)	4,648 (98.2)	4,795 (98.1)	4,176 (97.7)	4,926 (97.7)	6,161 (97.6)	8,811 (97.6)
Missing / Not reported	86 (2.8)	8 (1.9)	93 (2.3)	81 (1.7)	86 (1.8)	83 (1.9)	101 (2.0)	145 (2.3)	200 (2.2)
Legal intervention									
Yes	8 (0.3)	13 (0.3)	10 (0.2)	11 (0.2)	9 (0.2)	11 (0.3)	13 (0.3)	11 (0.2)	14 (0.2)
No	3,034 (96.9)	4,138 (97.8)	3,964 (97.4)	4,643 (98.1)	4,786 (97.9)	4,180 (97.7)	4,923 (97.6)	6,157 (97.5)	8,805 (97.5)
Missing / Not reported	90 (2.9)	81 (1.9)	98 (2.4)	82 (1.7)	92 (1.9)	86 (2.0)	104 (2.1)	145 (2.3)	207 (2.3)
Others									
Yes	204 (6.5)	337 (8.0)	501 (12.3)	884 (18.7)	938 (19.2)	870 (20.3)	1,052 (20.9)	1,498 (23.7)	2,375 (26.3)
No	2,797 (89.3)	3,789 (89.5)	3,441 (84.5)	3,749 (79.1)	3,810 (78.0)	3,267 (76.4)	3,675 (73.0)	4,480 (71.0)	6,209 (68.8)
Missing / Not reported	131 (4.2)	106 (2.5)	130 (3.2)	103 (2.2)	139 (2.8)	140 (3.3)	313 (6.1)	335 (5.3)	442 (4.9)
Self-inflicted violence									
Yes	560 (17.9)	817 (19.3)	1,078 (26.5)	1,326 (28.0)	1,635 (33.5)	1,377 (32.2)	1,783 (35.4)	2,273 (36.0)	3,367 (37.3)
No	2,348 (75.0)	3,174 (75.0)	2,781 (19.2)	3,203 (67.6)	3,067 (62.7)	2,727 (63.8)	3,045 (60.4)	3,780 (59.9)	5,424 (60.1)
Missing / Not reported	224 (7.2)	241 (5.7)	2,213 (54.3)	207 (4.4)	185 (3.8)	173 (4.0)	212 (4.2)	260 (4.1)	235 (2.6)
Motivation for violence									
Sexism	137 (4.4)	314 (7.4)	323 (7.9)	398 (8.4)	459 (9.4)	390 (9.1)	478 (9.5)	628 (9.9)	1,063 (11.8)
LGBTQphobia	110 (3.5)	151 (3.6)	212 (5.2)	282 (6.0)	330 (6.8)	264 (6.2)	378 (7.5)	489 (7.7)	791 (8.8)
Racism	3 (0.1)	5 (0.1)	2 (0.1)	8 (0.2)	10 (0.2)	3 (0.1)	7 (0.1)	4 (0.1)	9 (0.1)

Religious intolerance	3 (0.1)	5 (0.1)	10 (0.2)	3 (0.1)	4 (0.1)	10 (0.2)	7 (0.1)	11 (0.2)	5 (0.1)
Xenophobia	4 (0.1)	8 (0.2)	5 (0.1)	4 (0.1)	4 (0.1)	3 (0.1)	7 (0.1)	3 (0.0)	12 (0.1)
Interpersonal conflict	493 (15.7)	592 (14.0)	698 (17.1)	648 (13.7)	620 (12.7)	521 (12.2)	605 (12.0)	736 (11.7)	1,078 (11.9)
Homelessness	188 (6.0)	207 (4.9)	220 (5.4)	233 (4.9)	162 (3.3)	146 (3.4)	109 (2.2)	151 (2.4)	183 (2.0)
Disability	53 (1.7)	29 (0.7)	38 (0.9)	53 (1.1)	51 (1.0)	46 (1.1)	53 (1.1)	40 (0.6)	64 (0.7)
Others	915 (29.2)	1,544 (36.5)	1,092 (26.8)	1,181 (24.9)	1,315 (26.9)	1,130 (26.4)	1,333 (26.4)	1,618 (25.6)	2,504 (27.7)
Ignorado	1,226 (39.2)	1,377 (32.5)	1,472 (36.2)	1,926 (40.6)	1,932 (39.5)	1,764 (41.2)	2,063 (41.0)	2,633 (41.8)	3,317 (36.8)
Total	3.132 (100)	4.232 (100)	4.072 (100)	4.736 (100)	4.887 (100)	4.277 (100)	5.040 (100)	6.313 (100)	9.026 (100)

Source: the authors.

Supplement 3. Estimated incidence rate of violence against transgender people in Brazil, 2015-2023



Source: the authors.

Supplement 4. Estimated incidence rate of violence against transgender people by state, Brazil, 2015-2023

UF	2015	2016	2017	2018	2019	2020	2021	2022	2023
Acre	137.5	114.6	189.1	177.6	143.3	183.4	131.8	154.7	395.4
Alagoas	85.5	87.0	125.8	124.3	153.8	116.5	107.2	80.8	161.6
Amapá	100.6	88.0	125.7	62.9	88.0	69.1	106.9	44.0	125.7
Amazonas	89.3	91.7	60.7	85.7	84.5	85.7	67.9	109.5	103.6
Bahia	36.1	41.2	56.7	60.8	58.7	39.8	46.3	69.2	109.4
Ceará	39.3	33.3	36.6	83.5	97.7	98.8	117.9	154.4	212.3
Distrito Federal	50.8	18.6	39.0	64.4	84.7	72.8	89.8	154.1	204.9
Espírito Santo	69.1	76.5	92.6	102.5	112.3	49.4	65.4	87.6	116.0
Goiás	58.3	75.7	97.9	111.8	143.0	95.8	133.3	156.2	239.5
Maranhão	35.7	70.0	35.0	44.3	70.7	45.0	61.5	67.2	76.5
Mato Grosso	45.7	83.3	95.4	111.5	103.5	90.0	82.0	92.7	133.0
Mato Grosso do Sul	129.6	212.0	194.4	231.2	213.7	219.0	210.2	255.8	374.9
Minas Gerais	154.9	163.1	186.0	188.6	165.5	140.7	124.2	155.8	204.0
Pará	29.2	30.3	37.9	36.2	51.9	53.7	58.9	63.0	78.8
Paraíba	12.2	18.3	45.1	49.9	97.4	41.4	59.7	31.7	63.3
Paraná	57.3	80.9	107.4	132.2	142.0	140.8	120.7	188.7	230.2
Pernambuco	173.3	417.7	111.7	92.2	95.3	67.9	105.3	119.0	162.2
Piauí	28.3	46.2	86.4	126.6	84.9	62.6	113.2	140.0	86.4
Rio de Janeiro	29.6	35.2	43.0	81.1	89.8	67.1	95.6	151.6	206.0
Rio Grande do Norte	42.3	48.1	48.1	70.0	87.5	55.4	59.8	67.1	103.6
Rio Grande do Sul	70.9	61.5	101.2	135.5	110.1	123.9	108.3	124.8	266.0
Rondônia	31.7	49.0	69.2	86.5	147.0	126.8	77.8	129.7	308.4
Roraima	66.8	133.7	237.6	230.2	371.3	170.8	297.0	356.4	289.6
Santa Catarina	139.2	149.4	96.2	93.6	140.4	92.4	94.3	123.8	349.1

São Paulo	72.3	108.3	113.0	139.6	134.8	138.6	199.6	237.2	196.2
Sergipe	15.4	11.0	8.8	11.0	24.2	30.8	66.0	68.2	72.6
Tocantins	199.0	295.3	382.0	192.6	192.6	160.5	125.2	195.8	138.0
Brasil	74.3	100.4	96.6	112.3	115.9	101.4	119.5	149.7	214.0

Source: the authors.

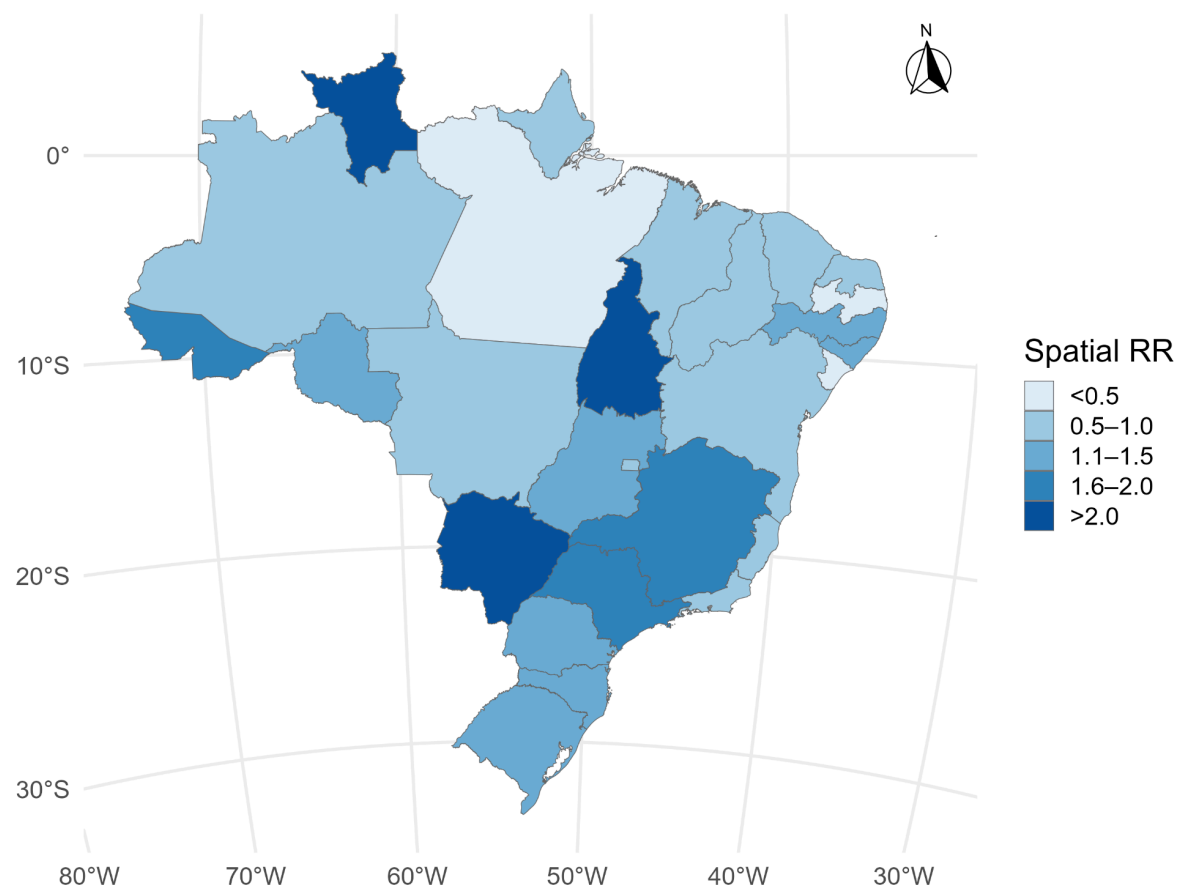
Supplement 5. Global Moran’s I coefficients for crude notification rates by year (2015–2023)

Year	Global Moran's I	p-value	Statistical Interpretation
2015	-0.231	0.090	Dispersion trend (not significant at 5%)
2016	-0.206	0.070	Dispersion trend (not significant at 5%)
2017	-0.173	0.145	Random spatial distribution
2018	-0.024	0.442	Random spatial distribution
2019	-0.108	0.304	Random spatial distribution
2020	+0.152	0.095	Positive clustering trend (marginal significance, $p < 0.10$)
2021	-0.017	0.390	Random spatial distribution
2022	+0.135	0.116	Positive clustering trend
2023	+0.267	0.024*	Statistically significant positive spatial autocorrelation ($p < 0.05$)

Notes: Spatial weights were defined using a standard Queen contiguity matrix (sharing borders or corners) across the 27 Brazilian Federated Units. The p-values were computed based on an analytical permutation test with 9,999 conditional randomizations. *Values indicate statistical significance at the $\alpha = 5\%$ level.

Source: the authors.

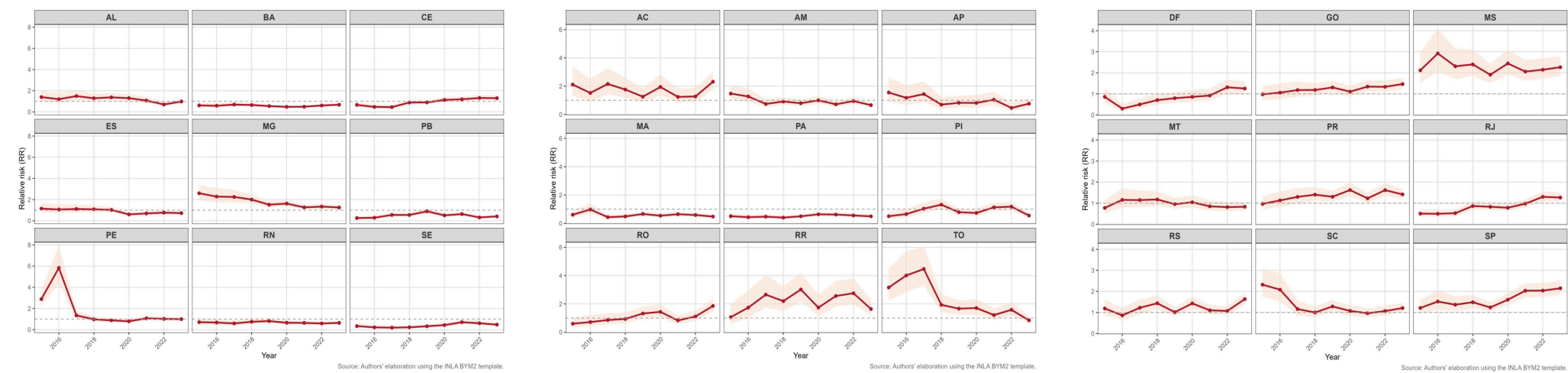
Supplement 6. Spatial random effect (pure component) por Unidade da Federação, Brasil, 2015-2023



Caption: *The maps were generated by the authors using the R computational environment (version 4.4; <https://www.R-project.org/>) utilizing the INLA package.*

Source: the authors.

Supplement 7. Estimated relative risk of violence against transgender people, using the INLA model, by UF, Brazil, 2015-2023



Source: the authors.

Supplement 8. Model Fitting Metrics

Hyperparameter	Mean	SD	Confidence Interval 2.5%	Confidence Interval 97.5%
Accuracy UF (BYM2)	4.463	1.215	2.490	7.238
ϕ UF (BYM2)	0.207	0.154	0.020	0.596
Annual Precision (RW1)	30.551	14.079	10.870	65.037

Caption: ϕ indicates the proportion of residual variance attributed to the spatially structured component of the BYM2 mode.

Source: the authors.