Table 1: Baseline characteristics of people with SMI and T2DM (exposed) and matched people with T2DM but no SMI (unexposed)

|  | Total | Exposed  (T2DM with SMI) |  | Unexposed  (T2DM without SMI) |
| --- | --- | --- | --- | --- |
| No. of people, N (%) | 6,383 | 1620 |  | 4,763 |
| No. of matched unexposed individuals, n (%) |  |  |  |  |
| 1 unexposed individual |  | 158 (9.8%) |  |  |
| 2 unexposed individuals |  | 332 (20.5%) |  |  |
| 3 unexposed individuals |  | 579 (35.7%) |  |  |
| 4 unexposed individuals |  | 551 (34.0%) |  |  |
| Age at diagnosis, mean (SD) |  |  |  |  |
| T2DM | 57.9 (12.6) | 57.4 (12.9) |  | 58.0 (12.5) |
| SMI |  | 47.8 (17.2) |  |  |
| Sex, n (%) |  |  |  |  |
| Male | 3,080 (48.3%) | 780 (48.1%) |  | 2,300 (48.3%) |
| Female | 3,303 (51.7%) | 840 (51.9%) |  | 2,463 (51.7%) |
| SMI diagnosis, n (%) |  |  |  |  |
| Schizophrenia |  | 850 (52.5%) |  |  |
| Bipolar disorder |  | 524 (32.4%) |  |  |
| Depression and psychosis |  | 140 (8.6%) |  |  |
| Schizoaffective disorder |  | 83 (5.1%) |  |  |
| Mixed and other |  | 23 (1.4%) |  |  |
| Diagnosis order |  |  |  |  |
| SMI then T2DM |  | 1269 (78.3%) |  |  |
| T2DM then SMI |  | 351 (21.7%) |  |  |
| Ethnic group, n (%) |  |  |  |  |
| White | 5,264 (82.5%) | 1,375 (84.9%) |  | 3,889 (81.6%) |
| Non-white (Asian, black, other, mixed) | 726 (11.4%) | 203 (12.5%) |  | 523 (11.0%) |
| Unknown | 393 (6.1%) | 42 (2.6%) |  | 351 (7.4%) |
| Deprivation, n (%) |  |  |  |  |
| 1st quintile (least deprived) | 972 (15.2%) | 217 (13.4%) |  | 755 (15.8%) |
| 2nd quintile | 1,210 (19.0%) | 275 (17.0%) |  | 935 (19.6%) |
| 3rd quintile | 1,215 (19.0%) | 281 (17.3%) |  | 934 (19.6%) |
| 4th quintile | 1,475 (23.1%) | 401 (24.7%) |  | 1,074 (22.6%) |
| 5th quintile (most deprived) | 1,505 (23.6%) | 445 (27.5%) |  | 1,060 (22.3%) |
| Unknown | 6 (0.1%) | 1 (0.1%) |  | 5 (0.1%) |
| Comorbidities, n (%) |  |  |  |  |
| Cardiovascular disease\* | 2,141 (33.5%) | 510 (31.5%) |  | 1,631 (34.2%) |
| Hypertension\* | 3,513 (55.0%) | 777 (48.0%) |  | 2,736 (57.4%) |
| No. of Charlson comorbidities, mean (median) | 0.51 (0) | 0.49 (0) |  | 0.51 (0) |
| 0 | 3,915 (61.3%) | 1,001 (61.8%) |  | 2,914 (61.2%) |
| 1 | 1,880 (29.5%) | 485 (29.9%) |  | 1,395 (29.3%) |
| 2 | 440 (6.9%) | 99 (6.1%) |  | 341 (7.1%) |
| ≧3 | 148 (2.3) | 35 (2.2) |  | 113 (2.4) |
| Medications, n (%) |  |  |  |  |
| Antidepressants | 1,696 (26.6%) | 792 (48.9%) |  | 904 (19.0%) |
| Antipsychotics |  |  |  |  |
| First generation | 360 (5.6%) | 307 (19.0%) |  | 53 (1.1%) |
| Second generation | 760 (11.9%) | 733 (45.3%) |  | 27 (0.6%) |
| Antidiabetes | 893 (14.0%) | 251 (15.5%) |  | 642 (13.5%) |
| Death at the end of follow-up |  |  |  |  |
| Yes | 740 (11.6%) | 234 (14.4%) |  | 506 (10.6%) |
| No | 5,643 (88.4%) | 1,386 (85.6%) |  | 4,257 (89.4%) |
| Average follow-up time for matched cohort analysis (years)\*\* | |  |  |  |
| Mean (SD) | 6.4 (3.7) | 6.1 (3.6) |  | 6.5 (3.7) |
| Median (min-max) | 5.8 (1-16) | 5.4 (1-16) |  | 5.9 (1-16) |
| Average follow-up time for cost predictor analysis (years)\*\*\* | |  |  |  |
| Mean (SD) |  | 5.3 (3.5) |  |  |
| Median (min-max) |  | 4.5 (0.5-16) |  |  |

\* Including those diagnosed by GP.

\*\* From date of T2DM diagnosis to study end date.

\*\*\* From date of diagnosis of both T2DM and SMI to study end date

Table 2: Average resource use per person per year for people with SMI and T2DM (exposed) and matched people with T2DM alone (unexposed)

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Unadjusted |  |  |  | Adjusted(d) |  |  |  | P value(e) |  |
|  | Total | Exposed  (T2DM+SMI) | Unexposed  (T2DM only) |  | Total | Exposed  (T2DM+SMI) | Unexposed  (T2DM only) |  |  |  |
| **N** | 6,383 | 1,620 | 4,763 |  | 6,383 | 1,620 | 4,763 |  |  |  |
| **Resource use, mean (SD)** |  |  |  |  |  |  |  |  |  |  |
| Primary care contacts(a) | 16.3 (10.6) | 20.1 (12.3) | 15.0 (9.7) |  | 16.8 (6.5) | 20.9 (7.8) | 15.3 (5.3) |  | <.001\*\*\* |  |
| Consultation only | 9.5 (7.1) | 12.1 (8.4) | 8.7 (6.4) |  | 9.8 (3.8) | 12.7 (4.4) | 8.8 (2.9) |  | <.001\*\*\* |  |
| Medicine prescription related | 5.7 (4.6) | 6.9 (5.7) | 5.4 (4.1) |  | 5.9 (2.6) | 7.2 (3.2) | 5.5 (2.2) |  | 0.245 |  |
| Test related | 1.3 (1.5) | 1.3 (1.5) | 1.2 (1.5) |  | 1.3 (0.5) | 1.4 (0.5) | 1.3 (0.5) |  | 0.491 |  |
| Inpatient stays |  |  |  |  |  |  |  |  |  |  |
| Annual no. of admissions(b) | 0.6 (1.7) | 0.8 (2.0) | 0.6 (1.6) |  | 0.6 (0.6) | 0.9 (0.7) | 0.6 (0.5) |  | 0.001\*\* |  |
| Mental health related(c) | 0.2 (0.1) | 0.1 (0.3) | 0.0 (0.1) |  | 0.0 (0.1) | 0.1 (0.2) | 0.0 (0.0) |  | <.001\*\*\* |  |
| Non-mental health related | 0.6 (1.7) | 0.7 (2.0) | 0.6 (1.6) |  | 0.6 (0.4) | 0.7 (0.4) | 0.6 (0.4) |  | 0.018\* |  |
| Annual no. of inpatient days | 4.7 (17.4( | 10.2 (29.1) | 2.9 (10.3) |  | 6.0 (14.0) | 15.1 (24.3) | 2.8 (4.9) |  | <.001\*\*\* |  |
| Mental health related | 0.9 (8.9) | 3.2 (15.6) | 0.1 (4.6) |  | 2.3 (10.5) | 8.9 (19.3) | 0.1 (0.3) |  | <.001\*\*\* |  |
| Non-mental health related | 3.8 (14.5) | 7.0 (24.0) | 2.8 (9.1) |  | 4.6 (9.6) | 10.1 (16.1) | 2.8 (4.7) |  | <.001\*\*\* |  |
| **Cost, mean (SD)** |  |  |  |  |  |  |  |  |  |  |
| Total | £2,619 (7,215) | £4,059 (12,231) | £2,128.8 (4,238) |  | £2,707 (2,705) | £4,473 (3,767) | £2,109 (1,888) |  | <.001\*\*\* |  |
| Primary care contacts | £618 (614) | £804 (786) | £555 (529) |  | £637 (331) | £849 (411) | £565 (263) |  | <.001\*\*\* |  |
| Inpatient stays | £2,001 (7,100) | £3,255 (12,181) | £1,574 (4,050) |  | £2,171 (3,034) | £3,883 (4,544) | £1,588 (1,945) |  | <.001\*\*\* |  |
| Mental health related | £156 (1,672) | £511 (2,771) | £36 (1,039) |  | £343 (1,475) | £1,271 (2,720) | £27 (83) |  | <.001\*\*\* |  |
| Non-mental health related | £1,844 (6,834) | £2,745 (11,771) | £1,538 (3,889) |  | £1,982 (2,562) | £3,154 (3,578) | £1,584 (1,954) |  | <.001\*\*\* |  |
| (a) Including all the consultation records from medical staff with associated read code  (b) Number of admissions is at the spell level. Hence, if a person transfers to another hospital, it will count as 2 admissions.  (c) Spells contain mental health related HRG codes.  (d) Adjusted for age at diagnosis of T2DM, sex, ethnic group, time since diagnosis of T2DM, and characteristics at diagnosis of T2DM, including area deprivation, comorbid hypertension, comorbid CVD, number of Charlson comorbidities, medications (antidepressant and antidiabetes drugs) and financial year.  (e) For difference between adjusted cases and controls.  \*\*\* p<0.001, \*\* p<0.01, \* p<0.05 | | | | | | | | | | |

Table 3: Cost drivers of total cost for people with T2DM and SMI (exposed)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Total (n=1620) |  | Primary care (n=1620) |  | Secondary care (n=1620) |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Marginal effect (£) | 95% CI |  | Marginal effect (£) | 95% CI |  | Marginal effect (£) | 95% CI |  |
| Age at diagnosis of having both T2DM and SMI | 140\*\* | [34, 245] |  | -22\*\* | [-39, -6] |  | 202\*\*\* | [101, 304] |  |
| Sex |  |  |  |  |  |  |  |  |  |
| Male | Reference |  |  | Reference |  |  | Reference |  |  |
| Female | 1,362 | [-1,103, 3,3826] |  | 917\*\*\* | [537, 1,297] |  | 728 | [-1,531, 2,988] |  |
| Ethnic group |  |  |  |  |  |  |  |  |  |
| White | Reference |  |  | Reference |  |  | Reference |  |  |
| Non-white (Asian, black, other) | 560 | [-3,425, 4,544] |  | -251\* | [-500, -2] |  | 2,172 | [-2,661, 7,005] |  |
| Unknown | -13,699\*\*\* | [-15,930, -11,468] |  | -1,860\*\*\* | [-2,580,-1,140] |  | -12,198\*\*\* | [-13,852, -10,544] |  |
| Type of SMI |  |  |  |  |  |  |  |  |  |
| Schizophrenia | Reference |  |  | Reference |  |  | Reference |  |  |
| Schizoaffective disorder | -262 | [-5,464, 4,940] |  | 557 | [-354, 1,468] |  | -874 | [-5,564, 3,815] |  |
| Bipolar disorder | 2,605 | [-191, 5,400] |  | 515\* | [79, 952] |  | 1,961 | [-740, 4,663] |  |
| Depression and psychosis | 26 | [-4,285, 4,336] |  | 839\* | [56, 1,621] |  | -2,144 | [-5,443, 1,155] |  |
| Other+ | 3,363 | [-8,021, 14,746] |  | 1,979 | [-207, 4,164] |  | 2,003 | [-6,193, 10,198] |  |
| Deprivation |  |  |  |  |  |  |  |  |  |
| 1st quintile (least deprived) | Reference |  |  | Reference |  |  | Reference |  |  |
| 2nd quintile | 374 | [-3,886, 4,633] |  | 52 | [-608, 713] |  | -163 | [-4,741, 4,413] |  |
| 3rd quintile | 861 | [-3,456, 5,179] |  | 203 | [-467,875] |  | 192 | [-3,989, 4,737] |  |
| 4th quintile | -289 | [-4,235, 3,657] |  | 6 | [-617, 629] |  | -770 | [-4,884, 3,344] |  |
| 5th quintile (most deprived) | 931 | [-3,093, 4,954] |  | 409 | [-223, 1,042] |  | 236 | [-3,871, 4,343] |  |
| Unknown | -16,728\*\*\* | [-20,129, -13,326] |  | -2,877\* | [-5,171, -583] |  | -13,397\*\*\* | [-16,945, -9,849] |  |
| Comorbidities |  |  |  |  |  |  |  |  |  |
| Cardiovascular disease | -547 | [-3,398, 2,304] |  | 377 | [-62, 815] |  | -1,235 | [-3,804, 1,335] |  |
| Hypertension | 2,820\* | [190, 5,451] |  | 639\*\* | [234, 1,043] |  | 2,137\* | [87, 4,187] |  |
| Number of Charlson Comorbidities | 1,660 | [-111, 3,431] |  | 603\*\*\* | [321, 885] |  | 1,150 | [-287, 2,587] |  |
| Medication |  |  |  |  |  |  |  |  |  |
| Antidepressants | 2,836\* | [241, 5,431] |  | 1,056\*\*\* | [645, 1,467] |  | 1,932 | [-595, 4,458] |  |
| Antipsychotics |  |  |  |  |  |  |  |  |  |
| First generation | 3,394 \* | [195, 6,592] |  | 1,332\*\*\* | [826, 1,839] |  | 1,993 | [-1,013, 4,998] |  |
| Second generation | 2,308 | [-224, 4,841] |  | 649\*\* | [247, 1,051] |  | 2,214 | [-274, 4,702] |  |
| Antidiabetes | 1,206 | [-2,274, 4,686] |  | 708\* | [163, 1,252] |  | 410 | [-2,571, 3,490] |  |
| Time since having T2DM and SMI (years) | 1,666\*\*\* | [1,160, 2,172] |  | 875\*\*\* | [752, 963] |  | 947\*\*\* | [524, 1,370] |  |
|  |  |  |  |  |  |  |  |  |  |
| Family | Gamma |  |  | Gamma |  |  | Gamma |  |  |
| Link | Log |  |  | Log |  |  | Log |  |  |

+ Other included other affective disorder and mixed conditions

Note: the financial year at T2DM or SMI diagnosis (whichever was the latest) was adjusted in all the analyses

\*\*\* p<0.001, \*\* p<0.01, \* p<0.05