All baseline variables were similar. In patients aged 65 and older, excess risks of nonvertebral fractures were observed after an initial prescription for zolpidem, lorazepam, and diazepam but not alprazolam.

### Table: Fracture Risk Comparisons

<table>
<thead>
<tr>
<th>Study</th>
<th>Population</th>
<th>Intervention Groups</th>
<th>Results</th>
<th>Comments</th>
</tr>
</thead>
</table>
| Finkle 2011            | USA Community Retrospective cohort (1/1999 to 9/2009) | N = 391,609  
N = 303,561.2 (after weighting) | All fractures  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
Risk ratio = RR; (CI), p | 10,857  
6.76 (5.63 to 7.89)  
17.23 (11.94 to 22.51)  
2.55 (1.78 to 3.65), <.001  
4803  
2.05 (1.04 to 4.01), .04  
6054  
2.71 (1.76 to 4.17), <.001  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
Risk ratio = RR; (CI), p | All baseline variables were similar after weighting. |
|                       |                                 | in patients aged 65 and older, excess risks of nonvertebral fractures were observed after an initial prescription for zolpidem, lorazepam, and diazepam but not alprazolam. |
|                       |                                 |                     |         |                                    |
|                       |                                 | Men and women (59.8%)  
Mean age 53.8 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 14,939.9  
8.44 (7.12 to 9.77)  
9.65 (6.41 to 12.89)  
2.23 (1.36 to 3.66), .006  
5,552.5  
3.19 (1.02 to 10.05), .048  
9,580.8  
2.09 (1.18 to 3.71), .02  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | There was excess risk for zolpidem relative to alprazolam and possibly relative to lorazepam, but risks for zolpidem and diazepam appeared similar. |
|                       |                                 | After weighting:  
Men and women (60.1%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 29,793.8  
8.25 (7.53 to 8.98)  
12.61 (10.04 to 15.19)  
1.68 (1.12 to 2.53), .02  
5,606.1  
1.04 (0.50 to 2.16), .89  
17,211.8  
2.19 (1.34 to 3.60), .006  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | The indication for the prescription of the benzodiazepines was not differentiated (anxiety vs sleep vs other indication). Further study is indicated to examine risk in men because the estimates of excess risk in men were less precise than the estimates in women. |
|                       |                                 | After weighting:  
Men and women (60%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 10,150.0  
8.90 (6.95 to 10.85)  
17.50 (9.66 to 25.34)  
1.29 (0.72 to 2.30), .32  
4059.3  
1.15 (0.40 to 3.31), .70  
6118.0  
1.37 (0.67 to 2.83), .3  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p |                                      |
|                       |                                 | After weighting:  
Men and women (60%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 7,25 (2.62 to 11.88)  
1.50 (0.68 to 3.35), .23  |                                      |
|                       |                                 | After weighting:  
Men and women (60%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 2.58 (2.82 to 3.40)  
4.59 (3.69 to 5.73), .0001  
5,606.1  
1.04 (0.50 to 2.16), .89  
17,211.8  
2.19 (1.34 to 3.60), .006  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p |                                      |
|                       |                                 | After weighting:  
Men and women (60%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 1.58 (1.24 to 2.01)  
2.58 (2.11 to 3.16), .00001  
5,606.1  
1.04 (0.50 to 2.16), .89  
17,211.8  
2.19 (1.34 to 3.60), .006  
Hip  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p |                                      |
|                       |                                 | After weighting:  
Men and women (60%)  
Mean age 53.7 |                     |                                    |
|                       |                                 | All fractures (adjusted)  
Nonvertebral  
Pre-treatment rate/1000 (CI)  
Post-treatment rate/1000 (CI)  
RRR; (CI), p | 3.56 (2.30 to 4.83)  
7.25 (2.62 to 11.88)  
1.50 (0.68 to 3.35), .23  |                                      |