Time Complexity where loop variable is incremented by 1, 2, 3, 4 .. – By GeeksForGeeks

What is the time complexity of below code?

```
void fun(int n)
{
    int j = 1, i = 0;
    while (i < n)
    {
        // Some O(1) task
        i = i + j;
        j++;
    }
}
```

The loop variable 'i' is incremented by 1, 2, 3, 4, … until i becomes greater than or equal to n.

The value of i is x(x+1)/2 after x iterations. So if loop runs x times, then x(x+1)/2 < n. Therefore time complexity can be written as $\Theta(\sqrt{n})$.