Problem of the Week 5

Determine whether

$$\sqrt{1+\sqrt{2+\sqrt{3+\sqrt{4+\cdots}}}}$$

converges or diverges. Prove your answer. ¹

 $^{^1\}mathrm{Posted}\colon 3/21/05$ Submit your answers (by e-mail: aydinn@kenyon.edu or hard copy) before 4 pm on 4/1/05 to Noah Aydin, Mathematics Dept.