Zbl 261.10007
Erdős, Paul; Ruzsa, I.jun.; Sarközy, A.
On the number of solutions of $f(n) = a$ for additive functions. (In English)
Acta Arith. 24, 1-9 (1973). [0065-1036]

Let f be a real-valued additive arithmetical function, $G(c, x) = \sum_{f(n)=c} 1$, $G(x) = \max_{c \neq 0} G(c, x)$. It is proved that $\max_f \lim_{x \to \infty} \frac{G(x)}{x} = \frac{1}{2}$ (the limit exists for every f) and

$$\log 2 < \liminf_{x \to \infty} \max_f \frac{G(x)}{x} \leq \limsup_{x \to \infty} \max_f \frac{G(x)}{x} < 1 - 10^{-1000}.$$

Classification:
11A25 Arithmetic functions, etc.
11K65 Arithmetic functions (probabilistic number theory)