Navarro has conjectured a necessary and sufficient condition for a finite group $G$ to have a self-normalising Sylow 2-subgroup, which is given in terms of the ordinary irreducible characters of $G$. The first-named author has reduced the proof of this conjecture to showing that certain related statements hold when $G$ is quasisimple. We show that these conditions are satisfied when $G/Z(G)$ is $\text{PSL}_n(q)$, $\text{PSU}_n(q)$, or a simple group of Lie type defined over a finite field of characteristic 2. (Received September 13, 2016)