As electrically assisted bicycles (e-bikes) become more widespread, the number of crashes in which they are involved is also growing. We used data from a survey of 685 e-bike users in Denmark to examine the factors which contribute to perceived e-bike safety and involvement in safety critical incidents. Using regression analyses, we demonstrated that riding style and e-bike attitude played a crucial role in both perceived safety and involvement in safety critical incidents. Age and female gender were negatively associated with perceived safety. 29% of participants had experienced at least one safety critical incident that they believed would not have happened on a conventional bike. The most frequent explanation offered for these situations was that other road users had underestimated the speed of the e-bike, followed by rider problems regulating e-bike speed. Older cyclists were more likely to report problems maintaining balance due to the weight of the e-bike. Preventive measures discussed include awareness campaigns and making it easier to distinguish e-bikes from conventional bicycles to address the problem of underestimation of speed. We also identified a need to familiarise with the e-bike before using it in demanding traffic situations.