## 2.7 Missing Data/Attrition

Attrition from a longitudinal panel study such as ABCD is inevitable and represents a threat to the validity of longitudinal analyses and cross-sectional analyses conducted at later time points, especially since attrition can only be expected to grow over time. While, to date, attrition in ABCD has been minimal, it remains an important focus for longitudinal analysis and its significance is likely to only grow as the cohort ages. Ideally, one tries to minimize attrition through good retention practices from the outset via strategies designed to maintain engagement in the project [@cotter2005; @hill2016; @watson2018]. However, even the best-executed studies need to anticipate growing attrition over the length of the study and implement analytic strategies designed to provide the most valid inferences. Perhaps the most key concern when dealing with data that is missing due to attrition is determining the degree of bias in retained variables that is a consequence of attrition. Assuming that the data are not missing completely at random, attention to the nature of the missingness and employing techniques designed to mitigate attrition-related biases need to be considered in all longitudinal analyses. Several different approaches can be considered and employed depending upon the nature of the intended analyses, the degree of missingness, and data available to help estimate missing and unobserved values.

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