You have been asked to study the effects of stress across the life span of people who have a close family member with HIV/AIDS.  the study is to be from the time of diagnosis until the death of the family member.  Design an appropriate study.  Explain and justify the study design chosen, and discuss possible limitations and sources of bias.

I would use a Nested Case Control (case-cohort) study design for this population. The case control portion of this study is the individuals who have HIV/AIDS. This part of the study can be relatively inexpensive and short-term. For the effects of stress across the life span of the close family within the case control, we would use a cohort study. The cohort study would be used to measure outcomes throughout the life span and allow for new controls for each outcome.

Possible limitations include: no close family members available, the patient is an introvert and less inclined to nominate family members for the study, or the patient may have passed, and the family does not want to participate due to this.

Sources of bias may include: loss to follow-up, which can be a problem if you are following members for a long period of time (like in this case). The family may also refuse to participate, or you cannot locate them. Confounding could also be an issue in this study if the family members do not share the exact same genetic markers as the patient (i.e., race/ethnicity, education, sex).