**Evaluate research in cognitive and biological psychology in terms of the ethical issues it raises.**

Researchers in both cognitive and biological psychology have attempted to minimise ethical problems raised by their research. In the main, this has been successful although the question of informed consent in some studies raises issues that are not always easy to assess.

Psychological research raises issues when it risks harming the participants. Any risk to PPs should be no greater than they would run in the course of their everyday lives. In Raine et al.'s (1997) study of brain functioning in murderers there were a number of relatively minor risks to the PPs. The procedure required a PET scan. This is invasive, as PPs require an injection and the radiotracer used carries a small health risk. In addition, the PPs needed to be scanned and the experience can be uncomfortable and stressful for anyone who is claustrophobic. However, PPs were informed about the risks before agreeing to participate, so there is no real ethical problem. It is slightly more problematic that the PPs with schizophrenia had their medication withdrawn for two weeks prior to the scan. Antipsychotic medication is necessary to maintain the PPs' mental health and its withdrawal risks a worsening of symptoms. This could be serious if the PP harmed themselves of someone else due to their hallucinations or delusions. Raine et al. justified the withdrawal of medication on the grounds that antipsychotics could mask the differences in brain functioning between murderers and controls. However, it could be questioned whether the requirement for valid results from these PPs really justifies this step. In contrast, cognitive research methods rarely involve any risks to the participants beyond boredom and possibly loss of self-esteem in PPs perform poorly in a word recall or digit span task. Standard protocols like debriefing, during which PPs are reassured about their performance are enough to ensure that PPs are not put at risk. When PPs are vulnerable, more care is required. For example, research with brain damaged patients, such as Milner et al.'s (1968) study of HM, may involve intensive testing of cognitive functioning that might be stressful or fatiguing for the PP and so psychologists must work in consultation with healthcare professionals to ensure that procedures like the mirror-drawing task used by Milner et al. are done in appropriate ways. In Milner et al., this appears to have been the case and so the work is ethically sound in this case.

Psychological research should only be done with PPs who agree to participate with a full understanding of what participation will entail. In general, this is accomplished through appropriate briefing, reminders of the right to withdraw and the opportunity to withdraw data retrospectively. This is standard in both cognitive and biopsychological research and generally does not cause problems. However, both fields work with PPs whose understanding may be impaired, so informed consent can be an issue. In Raine et al. (1997) some of the PPs had psychological disorders. This could mean they were not capable of understanding the procedures and therefore that they could not give informed consent. The researchers instead obtained consent from those legally empowered to act on their behalf, such as next of kin or legal counsel. The same would be true of HM in Milner et al., as his anterograde amnesia made him unable to understand that he was a research participant - in about 50 years of research HM never even learned Milner's name. Again, consent was obtained from legal guardians. If we can assume that, in both cases, the guardians acted in their clients' best interests, then there is no ethical problem. However, there remains, in the case of Raine et al., the problem that the PPs who were mentally competent might feel pressured to participate in the research. Their position as defendants in criminal cases might have made them feel that it would count against them if they refused to participate and so they took part even though they did not want to. In such cases, the PPs should be regarded as vulnerable and special care should be taken. All the murderers had legal representation, which might help to protect their rights. In addition, it is likely that the murderers would be in favour of participation as, if Raine et al. showed that their brains were different from non-offenders, this might be evidence for mitigating circumstances in their legal cases.

These examples show, therefore, that research in cognitive and biological psychology is generally ethically sound but also that where the research participants are vulnerable, special care is needed from the researchers.