**Stress and the Immune System**

There is increasing evidence that stress can cause illness by impairing the workings of the immune system. This system acts like an army, identifying and killing any intruders to the body. It consists of cells distributed throughout the body that fight disease.

           The cells within the immune system are known as white blood cells; these cells identify and destroy foreign bodies such as viruses.

           The presence of viruses leads to the production of antibodies.

           Antibodies are secreted by T cells.

           Prolonged stress shrinks the thymus gland.

           This is responsible for the production of killer, memory and T-helper cells which fight infection

           Shrinking the thymus leads to fewer T cells making the immune system less effective

**Stress and the Immune System (Kiecolt-Glaser et al):**

**AIMS:**

           To establish a link between stress and reduced immune functioning

           This was based on the assumption that the body’s response to stress decreases immune functioning

           They aimed to establish a difference in immune response between conditions of high and low stress.

           They also aimed to see if other factors such as psychiatric symptoms, loneliness, and life events were associated with immune functioning

**PROCEDURES:**

           75 first-year medical students (49 males and 26 females) volunteered (a self-selected sample).

           This was a natural experiment because the IV (the level of stress due to exams) was naturally occurring.

           A repeated measures design was used, with P’s blood samples being taken one month before their final exams (low stress condition) and again on the first day of their final exams (high stress condition)

           The number of natural killer cells and T cells were measured as indicators of immune functioning (the DV), with a high number indicating better immune functioning.

           On both occasions, the students were given questionnaires measuring psychiatric symptoms, loneliness or stressful life events

**FINDINGS:**

           Natural killer and T cell activity declined between the low-stress and high-stress conditions

           Therefore, the findings confirm the assumption that stress is associated with reduced immune functioning.

           The findings from the questionnaires revealed that immure responses were particularly suppressed in P’s who reported that they were experiencing psychiatric symptoms, loneliness or stressful life events

**CONCLUSIONS:**

           The research shows that stress is associated with immunosuppression and that the effect is stronger when there are multiple sources of stress.

           A number of different sources of stress were shown to contribute to reduced immune functioning; exams, psychiatric symptoms, loneliness, and life events were all implicated.

           However, only associations were established. Implications include the importance of stress management to immune functioning.

**EVALUATION:**

           + Because this was a natural study, there are fewer ethical objections.

           + An advantage of this study is that the choice of IV (exam stress) is a long-term form of stress. In previous studies, stress had been artificially induced, which is likely to produce a different type of stress to stress, which is experienced naturally.

           - This was a natural experiment, meaning that the IV was not under the control on the experimenter. As a result, cause and effect cannot be established as the IV is not controlled or isolated (causation can only be established when an IV has been directly manipulated). Therefore it cannot be established that stress causes the immunosuppression.

           - It is important to note that the functioning of the immune system of nearly all the students was still within the normal range, even in the higher stress condition.

           - The immune system is very complex, and so it is hard to be sure that it’s functioning was actually impaired in the higher stress condition. This means that the reliability and the validity of the measure are questionable.