# Word limit:

This assignment is worth 50% of your mark for the module. You must complete Part 1 and Part 2 of the below brief. The word limit is 1500 words +/-10% (i.e.1650 words). We have given the suggested word counts below. Please note that SPSS output tables and your reference list are not included in your word count.

# Background, aims and hypothesis

Hypnosis as a clinical intervention has increased in the treatment of acute and chronic pain. Reports of the use of hypnotic analgesia in medicine include; the reduction of chronic pain in cancer patients (Hilgard & LeBaron, 1984; Spiegel & Bloom, 1983) and procedures involving limb amputation, mastectomy, Caesarean section, appendectomy and surgery (Waxman, 1989; Elkan, 2005). It has been used in the Syringomyelia related pain (Jack, 1999) and to reduce pain and distress

experienced during wound debridement (Patterson, Everett & Marvin, 1992). It has also been shown to be effective in reducing acute experimentally induced pain (Friederich et al., 2001; Halliday & Mason, 1964; Hilgard & Hilgard 1983; Miltner et al. 1992; Casiglia et al., 2018). It has even been suggested that hypnosis allows for greater analgesic benefits when observing potential painful situations for others.

There does remain however the question as to what the underlying mechanisms for hypnotic analgesia are, and as to whether susceptibility and openness to the idea of hypnosis in the first instance is fundamental to the level of analgesic benefits felt. *Hypotheses*

The present study was an evaluation of hypnotic analgesia as participants either high or low in susceptibility to hypnosis were given pain stimuli under 3 different conditions No hypnosis (NH), Standard hypnosis (SH) and Hypnotic Analgesia (AH).

H1: It was predicted that there would be an effect of susceptibility, with those having high susceptibility to hypnosis reporting lower pain scores overall under Hypnosis Analgesia compared to low susceptibility participants.

H2: It was predicted that participants would report lower levels of pain during HA

compared to NH and SH.

# Details on the study

*Susceptibility to Hypnosis*

Participants were assessed using the Harvard Group Scale of Hypnotic Susceptibility, Form A, (Shor & Orne, 1962). These participants were classified as high susceptible (Harvard scores 6-12; N=18) and low susceptible (Harvard scores 0-5; N=18).

*Pain Stimulation*

Pain related stimuli were administered to the index finger of the right hand using a Digitimer Constant Current Stimulator, model DS7A. The index finger was prepared by the removal of dead skin with an emery board and cleaned with an alcohol swab. Cathode and anode bands were placed on the proximal and middle phalanx respectively. The stimuli comprised single 1.6 millisecond duration square wave electrical pulses (rise/fall time of 20 sec), with a one second inter-stimulus interval. There were two types of pain stimuli: single pulse (Standard) and triple pulse (Target). Each condition comprised 550 randomly presented stimuli, 20% of which were target. To remove habituation effects the first 50 trials of each condition were precluded from analysis.

*What happened?*

All participants were tested individually. During the first 10 to 15 minutes the experimenter developed a rapport with the participant in order to alleviate any worries or misconceptions about hypnosis. Sensory threshold and pain tolerance levels were then assessed using an ascending method of limits. Participants were asked to rate the degree of their sensory pain on a standardised scale where ‘0’ = ‘no pain’, ‘5’ = ‘moderate pain’ and ‘10’ = ‘unbearable pain’.

The three conditions were presented in a random order (NH, SH and HA conditions counterbalanced across participants). Well-established induction procedures, i.e., eye fixation, systematic muscle relaxation, counting down from ‘20’ to ‘1’ and a further ‘deepening’ technique using guided imagery were used *prior* to the hypnosis conditions. Identical instructions were given to the participants during all 3 conditions, requiring them to attend to their right index finger in order to minimise attention related effects. They were required to press a response key with the thumb of their left hand if

they detected a painful stimulus. Prior to the hypnotic-analgesia condition (HA) participants engaged in guided imagery involving themselves being on a warm sandy beach and that they had buried their right hand deep under the sand. They then received a suggestion that their hand would become numb and that they would lose sensation in their finger so they would be unable to detect the painful stimulus.

# Your Task

*Part 1 - Analyse and report the data (approximately 500 words, 50% of the marks)*

The above study and design would traditionally require a “2 x 3 Mixed-Factor ANOVA” to be carried out as the ‘susceptibility’ variable is a between group variable with two conditions (high and low), whilst the ‘hypnosis type’ variable is a with-in group (repeated measures) variable. Therefore, a mixed-factor ANOVA would be carried out to avoid any Type 1 errors. However, as at this point we have not taught you more complex study designs and types of ANOVA analysis, we will break up the analysis for the purpose of this coursework.

*Using the ‘Hypnosis Data file’ provided, run the following statistical tests:*

Please copy the appropriate tables from SPSS and put them directly into your coursework in an appendices; if you modify them slightly (as per APA) that is also acceptable.

1. **Descriptive statistics:** Produce descriptive statistics for each variable, by group.
   1. Paste the SPSS output tables into your document (within Appendix I).
   2. Report the analysis for the SPSS output as you have been taught and to APA formatting. Ensure that there is a clear narrative outlining the total number of participants, participants per group if any between-group IV, descriptive data for participants age and gender split. Also, be sure to give a description of the appropriate central tendency and dispersion scores for the pain scores as per the outlined Hypotheses. Ensuring clarity in your reporting as to which group/condition had a higher/lower pain score compared to the others.
2. **T-test:** Carry out the appropriate t-test analysis on the effect of susceptibility (high vs. low) on pain scores under the Hypnosis Analgesia (HypnoAnalgesia) condition. Include an appropriate bar graph.
3. Paste the SPSS output tables into your document (within Appendix II).
4. Report the analysis for the SPSS output as a succinct and clear paragraph as you have been taught and to APA formatting, including your bar chart.
5. **ANOVA:** Carryout the appropriate ANOVA (One-way between **OR** One-way related (repeated measures)) on the effect of ‘Hypnosis type’ (NA, SA and HA) on pain scores. Include an appropriate figure (bar chart for between-group design **OR** line graph for related-group).
6. Paste the SPSS output into your document (within Appendix III).
7. Report the analysis for the SPSS output as a succinct and clear paragraph as you have been taught and to APA formatting, including your bar chart/line graph. If there is a significant effect for the ANOVA be sure to also report the post-hoc analysis.

*Part 2: Discussion of your findings (approximately 1000 words, 50% of the marks)*

Write a discussion of your findings including:

1. Introductory paragraph – Do not restate the hypotheses, but outline as to whether the alternative hypotheses (predictions given above on page 2) were accepted or rejected.
2. Reporting findings – please give a summary of your main findings in your own words. Please note, you do not need to report the data values here as you have done this in the question above in part 1. Use this space to discuss the relevance of your findings.
3. Where do the findings sit – discuss the results alongside the information you have been given about the study in the Brief and what you have learnt from your own reading. So did the results sit line with those of others or were they in contradiction? If contradicting why could that be for this study compared to others?
4. Strengths and limitations - discuss the limitations and strengths of this study, and how it can be improved, you can consider the study methods and the analysis here.
5. Implication of findings (so what does this mean in real world terms) / future research
6. Concluding paragraph – provide a brief overview summary of the main take home point of the study. This helps to ensure that readers have a clear understanding as to what the study delivered.
7. References (not included in word count)

*Additional information*

Please note, that you are not required to run or report any normality tests on this data set or other tests of assumptions such as homogeneity of variance, skewness, kurtosis, in order to do well on this assessment. This is a mock data set, and for the purpose of this coursework you can assume the data is distributed normally and meets all necessary assumptions for the parametric tests you are conducting. However, if you wish to explore these additional tests as part of your own learning, please do! If you wish to report or discuss anything related to data assumptions in your Coursework, we suggest you keep this very brief – remember to focus on the main requirements of the assessment. Finally, do not change any of the data, add variables or transform the variables.