

# Writing a Laboratory Report

Learning Support

# The Laboratory Report

- 
- Purpose: On conclusion of a laboratory experiment, to report on
    - Rationale
    - Procedure
    - Results
    - Discussion of the contribution of experiment to current field of study and research
  - Accepted template for reporting results
  - APA format (APA, 2010)

# Structure of Laboratory Report



- 
- APA style and format
  - Cover page (title of report, student name, etc.)
  - Abstract (150 words)
  - The Laboratory Report has 5 main sections comprising:
    - Introduction and Literature Review
    - Method
    - Results
    - Discussion
    - Conclusion

# Abstract (150 words)

---

- Brief but comprehensive summary of the experiment with keywords
- Describes:
  - Problem investigated in experiment
  - Participants and age/sex/ethnic group
  - Essential features of study method
  - Basic findings including
    - Effect size
    - Confidence level
    - Statistical significance
  - Conclusion with implications/applications
- Keywords: capture the most important aspects of report
  - 3 to 5 words only

# Abstract Example (APA style)

(Adapted from Rahmani, Saeed, & Aghili, 2016)



## Abstract

This is an investigation on integrating art and music therapy in ameliorating depression in adolescents as an alternative to anti-depressive medication. A controlled clinical trial was performed with a sample of 24 depressed adolescents. The Beck Depression Inventory (BDI) and the Children's Depression Inventory (CDI) were adopted for selection and assessment purposes. The adolescents were randomly assigned to two groups, i.e. control (n = 12) who received no intervention in the course of the study and music and art therapy (n = 12) who received seven 2-h sessions of art and music therapy. Art-therapy was performed by using painting tasks. Music therapy sessions were performed simultaneously with art therapy. The subjects were exposed to three music themes, i.e. exhilarating, sad, and strengthening. The results revealed that integrating art and music therapy could significantly decrease depression in the adolescents.

*Keywords:* adolescents; art therapy; depression; music therapy

# The Report

---

- Introduction and Literature Review
- Method
- Results
- Discussion
- Conclusion

# Introduction (includes Literature Review)

---

- Presents specific problem under investigation
- Describes research strategy
- Discusses related relevant literature
- Answers these questions:
  - Why is this problem important?
  - How does this study relate to previous work in this area?
  - What are the primary (and/or secondary) hypotheses and objectives of the study?
  - What are the links to theory?
  - How do the hypotheses and research design relate to each other?
  - What are the theoretical and practical implications of this study?
- Shows the reader what was done and why

# Introduction Example (APA style)

(Adapted from Rahmani, Saeed, & Aghili, 2016)



---

## ART AND MUSIC THERAPY AND ADOLESCENT DEPRESSION

3

### Integrating effect of art and music therapy on depression in adolescents

Adolescents are prone to variety of physical and mental risks. One of the most important risks is depression which might severely affect adolescents and hinder them from any potential achievement (Monteiro, Matos, & Oliveira, 2015). Depression is considered a common, debilitating, burdensome, and chronic mental health problem, and regarded as a developmental phenomenon (Hankin, 2015) that is accompanied by the appearance of a population-wide rise in susceptibility to depression that is continued in adulthood (Davey, Yücel, & Allen, 2008). Depression in adolescence has been widely examined in several investigations (e.g. Dierker et al., 2015; Hamilton, Hamlat, Stange, Abramson, & Alloy, 2014; Hankin, 2015; McPhie & Rawana, 2015; Monshouwer et al., 2012; Monteiro et al., 2015; Verbeek et al., 2012).

# Introduction Example (APA style)

Continuation of example from previous slide



Depression might have variety of consequences such as unhappy temper, reduced concentration or desire in most actions, being too thin or overweight, insomnia or hypersomnia, anxiety, exhaustion, feelings of worthlessness, and even thoughts of death or suicide (Dere-Meyer, Bender, Metzl, & Diaz, 2011). Such consequences might be more severe in adolescents who are passing through an important and sensitive stage of their lives.

Art therapy has been claimed to be effective for depression (Preskorn, Ross, & Stanga, 2004), as it may provide a basis for a depressed person to express his/her depression safely (Branch, 1992). Art therapy is considered a soft way by which a depressed person can release his/her aggression without having to engage in any verbal communication (Harnden, Rosales, & Greenfield, 2004). Art therapy is also beneficial for strengthening the relationship between the client and treatment team (Dere-Meyer et al., 2011).

# Introduction Example (APA style)

Continuation of example from previous slide



Music therapy can be defined as the intended use of music to attain therapeutic results and is frequently presented via group and individual programs after a process of referral and assessment (Castillo-Pérez et al., 2010). Music therapy arouses cognitive functions, acts on anxiety, depressive phases and aggressiveness and, therefore, considerably improves attitude, communication and independence (Guétin, Soua, Voiriot, Picot, & Hérisson, 2009). Maratos, Gold, Wang, & Crawford (2008) claimed that music therapy is accepted by people suffering from depression and it can improve their moods. Raglio et al. (2012) believe that a music therapy intervention should occur in a therapeutic setting by trained music-therapists. Effect of music therapy on depression and several depression-related disorders have been evaluated (Castillo-Pérez et al., 2010; Esfandiari & Mansouri, 2014; Lu et al., 2013; Romito, Lagattolla, Costanzo, Giotta, & Mattioli, 2013; Schwantes, McKinney, & Hannibal, 2014; Shirani, Bidabadi, & Mehryar, 2015; Verrusio et al., 2014; Zhou et al., 2015).

To the best of our knowledge, no research has been performed yet on integrating music therapy and art therapy to treat depression in adolescents. Therefore, the present study was formulated in order to assess such effect on adolescents.

# Method

- Describes how the study was conducted in detail
- Includes conceptual and operational definitions of variables in the study
- Subsections comprise:
  - Participants
  - Research design
  - Procedures
  - Measures and experimental interventions

# Method pro forma (APA style)



---

## **Method**

Here you explain what the method you used when you embarked on your study. This paragraph may be omitted if you do not see the need to introduce this section. You can immediately, after the first level heading, proceed to the next section on ‘Participants.’

### **Participants**

These are the people who participated in your study. State their age, sex, ethnic group, and give percentages for comparison. For example, 60% identified themselves as female, 38% as male, and 2% as transsexuals, between the ages of 23 and 26 years ( $M = 25$ ,  $SD = 2.1$ ).

### **Research Design**

Describe the specific design of your study; include variables, definitions and justifications.

### **Measures**

Describe the specific instruments you used in your study to collect data, e.g., tests and/or questionnaires. When describing the measures, do discuss the reliability of the measures used.

### **Procedures**

Here you detail how the sample size was determined and selected. Describe the settings and locations in which the data was collected, any reward for participation, as well as ethics approval for the study.

# Results

- 
- Summary of collected data and analyses
  - Provision of data and details to justify conclusions
  - ALL relevant results must be mentioned
    - Include even those that do not justify your hypotheses
  - Use tables to present your results where comparison would enhance the analysis and understanding
    - For detailed instructions on how to present results in tables APA style (Paiz et al., 2018b), please go to <https://owl.english.purdue.edu/owl/resource/560/19/>
  - Use subsections for reporting different categories of results
    - For detailed instructions on the five levels of headings in laboratory reports in APA style (Lee, 2011), please go to <http://blog.apastyle.org/apastyle/2011/04/how-to-use-five-levels-of-heading-in-an-apa-style-paper.html>

# Discussion

- Reminder to readers of your hypotheses
- Evaluation and interpretation of the implications of the results of your study
  - Examine
  - Interpret
  - Qualify the results
  - Draw inferences and conclusions
- Emphasise theoretical and/or practical consequences of the results
- Critical analysis of your study
  - Include the limitations of your study
  - Address alternative explanations of your results
- Recommendation of areas for future study

# Conclusion

- Summary of study
  - Key findings
  - Main reasons for agreement or discrepancies with past studies
- Reiterate future studies recommended in Discussion

# Conclusion Example (APA style)

(Adapted from Rahmani, Saeed, & Aghili, 2016)



---

## Conclusion

In conclusion, the findings of the present study support the effectiveness of art and music therapy in combination on the amelioration of depression among 15-year old adolescents. Future research can be directed toward investigating the combined effect of art and music therapy on greater number of participants. Future research can also consider the differences between art and music therapy in isolation as well as analysing the differential influence of variety of arts and different types of music on different age groups. For treating adolescents with symptoms of depression, the present study implies that adoption of non-pharmaceutical interventions should be the first course of action.

# References APA style

- 
- These should included after the Conclusion on a fresh page
  - References mirror the in-text citations in the study
  - References should be listed in alphabetical order of the family name of the first author
  - For details (Paiz et al., 2018a), please refer to <https://owl.english.purdue.edu/owl/resource/560/05/>

# References

- 
- APA. (2010). *Publication manual of the American Psychological Association* (6<sup>th</sup> ed.). Washington, DC: American Psychological Association.
- Lee, C. (2011). How to use five levels of heading in an APA style paper. *APA style blog*. Retrieved from <http://blog.apastyle.org/apastyle/2011/04/how-to-use-five-levels-of-heading-in-an-apa-style-paper.html>
- Paiz, J. M., Angeli, E., Wagner, J., Lawrick, E., Moore, K., Anderson, M., ... Keck, R. (2018a). *Reference list: Basic rules*. Retrieved from <https://owl.english.purdue.edu/owl/resource/560/05/>
- Paiz, J. M., Angeli, E., Wagner, J., Lawrick, E., Moore, K., Anderson, M., ... Keck, R. (2018b). *APA tables and figures*. Retrieved from <https://owl.english.purdue.edu/owl/resource/560/19/>
- Rahmani, M., Saeed, B. B., & Aghili, M. (2016). Integrating effect of art and music therapy on depression in adolescents. *Journal of Educational Sciences and Psychology*, 6(2), 76-87.