

TURKISH REPUBLIC

MARMARA UNIVERSITY

INSTITUTE OF HEALTH SCIENCES

# **THE EFFECTS OF CANNABIDIOL ON COGNITION FUNCTIONS IN PATIENTS WITH CHRONIC SCHIZOPHRENIA**

AYŞE GÜLER

DOCTOR of PHYLOSOPHY THESIS

SUPERVISOR

PROF. ZEYNEP GRIFFIN

PHARMACOLOGY PhD PROGRAM

CO-SUPERVISOR

PROF. ALİ KOÇAK

İSTANBUL- 2023

logo içeren bir resim

Açıklama otomatik olarak oluşturuldu

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**STATEMENT**

Hereby I declare that this thesis study is my own work, I had no unethical behavior in any stage from planning of the thesis until writing it, I have obtained all the information in this thesis within the academic and ethical rules, I have cited all the information and comments that are not obtained with this thesis study, and these sources are also included in the list of references, I hereby declare that I have no infringement of patents and copyrights during the study and writing of this thesis.

Name and Surname of the Student

Signature

**ACKNOWLEDGMENT**

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**ABBREVIATIONS LIST**

|  |  |  |
| --- | --- | --- |
| ACTH | : | Adrenocorticotropic hormone |
| BH4 | : | Tetrahydrobiopterin |
| CRP | : | C-reactive protein |
| CSF | : | Cerebrospinal fluid |
| iNOS | : | Inducible nitric oxide synthase |
| CNS | : | Central nervous system |
| NF-κB | : | Nuclear factor kappa B |
| NLRP | : | NOD-like receptor protein |
| NMDA | : | N-methyl-D-aspartate |
| ODC | : | Ornithine decarboxylase |

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1. **ÖZET**

**Tezin başlığı :** Kronik Şizofreni Hastalarında Kannabidiolün Bilişsel Fonksiyonlar Üzerine Etkileri

**Öğrencinin Adı Soyadı :** Ayşe Güler

**Danışmanın Adı Soyadı :** Prof. Dr. Zeynep Griffin

**Programın Adı :** Farmakoloji Doktora Programı

**Amaç:**…………………………………………………………………………………………...

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**Anahtar Kelimeler:** Şizofreni, kannabidiol, bilişsel fonksiyon, hipokampus, BDNF

**2. SUMMARY**

**Title of Thesis:** Effects of Cannabidiol on Cognitive Functions in Patients with Chronic Schizophrenia

**Student Name, Surname:** Ayşe Güler

**Supervisor Name :** Prof. Zeynep Griffin

**Program Name :** Pharmacology PhD Program

**Objective:** ………………………………………………………………………………………

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**Conclusion:** …………………………………………………………………………………….

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**Keywords:** Schizophrenia, cannabidiol, cognitive function, hippocampus, BDNF

**3. INTRODUCTION and OBJECTIVE**

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**4. BACKGROUND**

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**5. MATERIALS and METHODS**

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**6. RESULTS**

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**7. DISCUSSIONS and CONCLUSION**

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**8. REFERENCES**

**EXAMPLES**

**Article**

Grady, J. S., Her, M., Moreno, G., Perez, C., & Yelinek, J. (2019). Emotions in storybooks: A comparison of storybooks that represent ethnic and racial groups in the United States. *Psychology of Popular Media Culture*, 8(3), 207–217. <https://doi.org/10.1037/ppm0000185>

Jackson, L. M. (2019). The psychology of prejudice: From attitudes to social action (2nd ed.). *American Psychological Association*. https://doi.org/10.1037/0000168-000

Sapolsky, R. M. (2017). Behave: The biology of humans at our best and worst. Penguin Books.

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**Book Section**

Aron, L., Botella, M., & Lubart, T. (2019). Culinary arts: Talent and their development. In R. F. Subotnik, P. Olszewski-Kubilius, & F. C. Worrell (Eds.), *The psychology of high performance: Developing human potential into domain-specific talent* (pp. 345–359). American Psychological Association. https://doi.org/10.1037/0000120-016

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Harris, L. (2014). *Instructional leadership perceptions and practices of elementary school leaders* [Unpublished doctoral dissertation]. University of Virginia.

**Proceeding**

Duckworth, A. L., Quirk, A., Gallop, R., Hoyle, R. H., Kelly, D. R., & Matthews, M. D. (2019). Cognitive and noncognitive predictors of success. *Proceedings of the National Academy of Sciences*, USA, 116(47), 23499–23504. https://doi.org/10.1073/pnas.1910510116

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Please visit this link for additional examples https://apastyle.apa.org/style-grammarguidelines/references/examples

**9. CURRICULUM VITAE**

|  |  |  |  |
| --- | --- | --- | --- |
| Name |  | Surname |  |
| Place of Birth |  | Date of Birth |  |
| Nationality |  | Phone |  |
| E-mail |  |  |  |

**Educational Level**

|  |  |  |
| --- | --- | --- |
|  | Name of the Institution where he/she was graduated | Graduation year |
| Postgraduate/Specialization |  |  |
| Masters |  |  |
| Undergraduate |  |  |
| High school |  |  |

**Job Experience**

|  |  |  |
| --- | --- | --- |
| Duty | Institution | Duration (Year - Year) |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **Foreign Languages** | **Reading comprehension** | **Speaking\*** | **Writing\*** |
|  |  |  |  |
|  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Foreign Language Examination Grade\*** | | | | | | | | |
| YDS | ÜDS | IELTS | TOEFL IBT | TOEFL PBT | TOEFL CBT | FCE | CAE | CPE |
|  |  |  |  |  |  |  |  |  |

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Math** | **Equally weighted** | **Non-math** |
| ALES Grade |  |  |  |
| (Other) Grade |  |  |  |

**Computer Knowledge**

|  |  |
| --- | --- |
| Program | Use proficiency |
|  |  |

**\***Evaluate as very good, good, moderate, poor.

**10. SCIENTIFIC ACTIVITIES**

**EXAMPLES**

**Article**

Grady, J. S., Her, M., Moreno, G., Perez, C., & Yelinek, J. (2019). Emotions in storybooks: A comparison of storybooks that represent ethnic and racial groups in the United States. *Psychology of Popular Media Culture*, 8(3), 207–217. <https://doi.org/10.1037/ppm0000185>

**Book**

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**Book Chapter**

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Thestrup, K. (2010). To transform, to communicate, to play—The experimenting community in action. In E. Hygum & P. M. Pedersen (Eds.), *Early childhood education: Values and practices in Denmark.* Hans Reitzels Forlag. <https://earlychildhoodeducation.digi.hansreitzel.dk/?id=192>

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**Project**

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Griffin, Z. & Güler, A. Kannabisin bilişsel fonksiyonlar üzerine etkisi. Marmara Üniversitesi Bilimsel Araştırma Projeleri Koordinasyon Birimi (SAG-C-DRP-xxxxxx-xxxx), 2020-2022.

**12. APPENDICES**