Adolescent Mental Health:
Causes, Correlates, Consequences

PSYCH GU3624
Fall 2019
4 points

Course Information
Location: 405 Schemerhorn Hall
Time: Tuesday, 10.10 AM -12.00 PM
Office Hours: Tuesday, 9.00-10.00 AM
Office Hours Location: 356 Schemerhorn Hall

Instructor Information
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Course Description
Adolescence is a peak period for the onset of mental disorders and suicidal behaviors. The seminar is designed to enhance understanding of topics including, prevalence, etiology, risk factors, mechanisms, prevention and treatment approaches, and ethical considerations related to clinical research.

Prerequisites
The seminar is open to undergraduate students who have completed UN1001 (*Science of Psychology*) or an equivalent introductory course in psychology. Coursework in mental disorders and/or research methods is strongly recommended. Enrollment will be limited to 12 students.

Role in the Psychology Curriculum
The course is designed to complement material addressed across a range of subject matters in other psychology courses, including abnormal psychology, research methods, and affective neuroscience. In doing so, the course will provide a framework for students to think deeply about the onset, persistence, and treatment of mental disorders. Most critically, the seminar will encourage students to think carefully about *what* can be done to improve clinical outcomes and how we know whether treatments work.

The course can be used to fulfill the following degree requirements:

- For Psychology majors and concentrators, and for students pursuing the Post-baccalaureate certificate in Psychology, this course meets the Group III (Social, Personality, & Abnormal Psychology) distribution requirement.
- For Psychology majors and Psychology Postbac students, it fulfills the seminar requirement.
- For undergraduates pursuing the Neuroscience & Behavior major, it fulfills the advanced seminar requirement in the Psychology portion of the major.
- Junior and senior Neuroscience & Behavior and Psychology majors will have priority for registration. However, for non-majors in the College and in G.S., this course could count as one term of the natural science requirement, provided the student has taken the prerequisite courses and has instructor permission.

Motivating Questions
1. Despite increased awareness of mental health problems and better access to treatment, why is the prevalence increasing?

2. Reducing the prevalence of mental disorders and suicide is predicated on knowing *what* factors contribute to the onset and persistence of mental health problems. Recent NIMH initiatives place a premium on elucidating neural circuitry that may underlie mental disorders. Nevertheless, how do we efficiently and effectively translate affective neuroscience to clinical applications?
3. Technology affords new inroads for intervention. However, there are key ethical considerations that must be considered; particularly as it relates to privacy. On the one hand, technology, such as smartphones, may play a pivotal role in delivering *just-in-time* interventions. On the other hand, technology may have unintended negative consequences (e.g., invasion of privacy, iatrogenic effects). How do we balance technological advancements with ethical clinical care?

Course Overview
The prevalence of adolescent mental disorders and suicidal behaviors continue to rise, and these issues portend long-term negative consequences, including higher rates of college attrition, relationship difficulties, occupational challenges, and earlier mortality. Within this course, we will discuss research that clarifies the state of the problem and do so in the context of our current understanding of theory and mechanisms that may explain the onset, persistence, and recurrence of mental disorders and suicidal behaviors. Material covered within the course will integrate diverse areas of research, including psychiatric epidemiology, behavioral phenotyping, affective neuroscience, influences from (social) media, cultural considerations, prevention and treatment efforts, technological advancements, and ethical considerations. The course is designed to have students think deeply about *why adolescence is a peak period of onset* and to identify necessary gaps that we need to address to improve mental health outcomes.

An important consideration for this course is that there may be some material that is upsetting or triggering. If any of the readings or material from class is distressing, please communicate directly with the Instructor. Please also be aware of the resources available to you on campus, including Counseling and Psychological Services (https://health.columbia.edu/content/counseling-and-psychological-services) and Nightline (http://blogs.cuit.columbia.edu/nightline/). More resources also are offered through the Office of University Life (https://universitylife.columbia.edu/student-resources-directory#health).

Course Objectives
1. Students will obtain a clear understanding regarding the scope of adolescent mental health problems.
2. Students will learn about leading adolescent mental health theories across mental disorders and suicidal behaviors, and in doing so, identify how these theories have been advanced to develop prevention and intervention programs.
3. Students will learn about how certain factors (e.g., race, gender) and mechanisms (e.g., neural deficits) may confer risk for mental health issues.
4. Students will learn to think critically about the limitations of extant research and will be encouraged to work cooperatively to clarify next steps to advance clinical research in this area across diverse methodologies (e.g., affective neuroscience, technology, treatment).
5. Students will develop effective oral and written skills.

Course Organization
Class. The class will meet once per week. Each 1 hour and 50 minute class will primarily consist of student presentations. Students will provide overviews of the weekly readings as well as a student-selected reading. For each class, students should be prepared to participate.

Assignments. Student grades will be determined by attendance, participation, weekly thought pieces, a presentation, and a final paper. More detail about grading is provided below.

Grading

- 25%: Attendance and Participation
- 25%: Thought Pieces
- 25%: Presentation
- 25%: Final Paper

Attendance and Participation. Attendance and participation in every class is expected, and this serves as the foundation for a seminar course. Attendance will be taken at the beginning of each class. Students should be active contributors throughout each class. If you need to miss a class, please notify me as soon as possible. One absence will not negatively impact your grade, but documentation is requested (e.g., dean's note, doctor's note). You will still be responsible for the work from the missed class.

Thought Pieces. The seminar is enriched when everyone completes the reading. Prior to each class, students must submit a short (1-2 paragraphs) *Thought Piece* via Courseworks the evening before the class (no later than 6 pm; including when it is your turn to present). The purpose of the *Thought Piece* is not to summarize the readings. Rather, it is an opportunity for you to think deeply about what you read: (a) *what are the central issues discussed and how does this relate to the field*, (b) *what are problems in the approach/method highlighted*, (c) *what are the major obstacles that remain*, (d) *what are ethical considerations that need to be addressed*? Each Thought Piece will be graded from 1 (*poor*) to 10 (*excellent*). Each submission should clearly state the primary issue/question being addressed (2 points). Then, clarify the importance of the issue (2 points) as well as what can be done from a clinical/research/policy capacity to better address the current problem (4 points). Finally, clarity of writing (2 points) also will factor into the grading.

Presentation. Each student is expected to present for one class period. Depending on the number of students in the seminar, it may be that some students present alone or as a pair. Presentations will provide an overview of the reading as well as the presenter-selected reading. A presenter must select a complementary reading that will be distributed to the class at least a week before the presentation. This reading must be approved by the Instructor. Students are encouraged to attend office hours to discuss options for the complementary reading (please allow enough time so that articles can be distributed as early as possible). This reading serves to provide an alternative perspective on the topic for the week. Critically, presentations do not merely summarize the readings. Rather, strong presentations will highlight remaining challenges, questions, and issues in the existing research. Presenters are encouraged to stimulate conversation and debate within the class. Presentations will be graded on: (a) quality of slide deck (5 points), (b) command of the material (5 points), (c) ability to highlight key gaps in the field (10 points; this also includes choosing an appropriate complementary reading), and (d) ability to stimulate active conversation among classmates (5 points). Students are strongly encouraged to meet with the Instructor to review the slide deck and articles prior to presenting. This is not a requirement, but it is strongly encouraged. Slides must be sent to the Instructor 48 hours in advance of the class. Feedback on all presentations will be provided in each of these domains.

Final Paper. Students will prepare a final paper (10-12 pages, double-spaced, excluding references). The paper can address any topic covered by the class, and it will be an expansion on material already covered in class during the weekly presentations. Students are required to discuss the paper topic with the Instructor. As part of the approval process, students must submit

a half- to one-page description on their paper topic (along with a list of potential sources), and this must be approved. The overall purpose of this exercise is to think deeply about what we know, what we don't know, and how we can move forward in a given area of adolescent mental health research. Papers should include appropriate citations and will be consistent with APA (6th Edition) format guidelines. Grading will reflect: (a) inclusion of clear thesis related to a specific class topic (5 points), (b) support of thesis using current research (10 points), and (c) inclusion of "next steps" to addressed identified gaps (5 points). Writing style and appropriate referencing also will be considered (5 points).

Late Assignments. Completing assignments on time is strongly encouraged. If there is a suitable reason for turning an assignment in late, please discuss with me in advance. Unless we have agreed on an extension, all late work will be penalized.

Students with Disabilities
If you are a student with special needs, please meet with me before the first class. We will ensure that appropriate accommodations are made. Please also contact the Disability Services prior to the first class in order to ensure that accommodations are prepared (https://health.columbia.edu/disability-services).

Academic Integrity
You are a vital member of the intellectual community at Columbia University. Core to our mission is upholding principles of academic integrity and honesty. At all times, present your own work and ideas—plagiarism is strictly prohibited. If you are falling behind in the seminar, please speak with me at any time. Another fundamental component of academic integrity is respect. The classroom should be a safe place to explore different ideas in a respectful manner. Please review Columbia College's Honor Code and Guide to Academic Integrity:
http://www.college.columbia.edu/academics/academicintegrity).

Course Topics & Readings
Readings will be provided as pdfs on CourseWorks. Each student is responsible for reading every article each week. Additionally, the presenter(s) will select a complementary reading that will be distributed to the class at least a week before the presentation, which also should be read. Some material covered in this course may be distressing. If at any time course materials (e.g., readings, presentations, seminar discussions) result in distress or are triggering, please contact the Instructor.

Week	Topic	Readings
1 9/3/19	**Course Introduction** • What is the structure of the seminar? • What is the scope of mental health problems among adolescents? • What are the clinical and research barriers that have prevented progress in the field?	i. Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., ... & Swendsen, J. (2010). Lifetime prevalence of mental disorders in US adolescents: results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child & Adolescent Psychiatry*, *49*(10), 980-989. ii. Insel, T., Cuthbert, B., Garvey, M., Heinssen, R., Pine, D. S., Quinn, K., ... &

	• What are the primary differences between a DSM vs. RDoC approach to understanding mental disorders? • What are the research priorities at NIMH, and how does this impact clinical research?	Wang, P. (2010). Research domain criteria (RDoC): toward a new classification framework for research on mental disorders. *American Journal of Psychiatry*,748-751. iii. Casey, B. J., Oliveri, M. E., & Insel, T. (2014). A neurodevelopmental perspective on the research domain criteria (RDoC) framework. *Biological Psychiatry*, *76*(5), 350-353. iv. NIMH Strategic Plan for Research: Strategic Objectives 1-4 (pp. 21-49).
2 9/10/19	**Anxiety Disorders** • What is attention bias and how does it relate to anxiety disorders? • What are important developmental considerations regarding attention bias? • What are the behavioral and neural underpinnings of attention bias in youth-based anxiety disorders?	i. Shechner, T., Britton, J. C., Pérez-Edgar, K., Bar-Haim, Y., Ernst, M., Fox, N. A., ... & Pine, D. S. (2012). Attention biases, anxiety, and development: toward or away from threats or rewards?. *Depression and Anxiety*, *29*(4), 282-294. ii. Roy, A. K., Vasa, R. A., Bruck, M., Mogg, K., Bradley, B. P., Sweeney, M., ... & CAMS Team. (2008). Attention bias toward threat in pediatric anxiety disorders. *Journal of the American Academy of Child & Adolescent Psychiatry*, *47*(10), 1189-1196. iii. White, L. K., Britton, J. C., Sequeira, S., Ronkin, E. G., Chen, G., Bar-Haim, Y., ... & Pine, D. S. (2016). Behavioral and neural stability of attention bias to threat in healthy adolescents. *Neuroimage*, *136*, 84-93. iv. Thai, N., Taber-Thomas, B. C., & Pérez-Edgar, K. E. (2016). Neural correlates of attention biases, behavioral inhibition, and social anxiety in children: An ERP study. *Developmental Cognitive Neuroscience*, *19*, 200-210.
3 9/17/19	**Treatment for Anxiety Disorders** • Can attention bias be effectively targeted in the treatment for anxiety? • What is Attentional Bias Modification, and what is the efficacy? • How does attention bias modification compare to gold	i. Bar-Haim, Y. (2010). Research review: attention bias modification (ABM): a novel treatment for anxiety disorders. *Journal of Child Psychology and Psychiatry*, *51*(8), 859-870. ii. Hakamata, Y., Lissek, S., Bar-Haim, Y., Britton, J.C., Fox, N.A., Leibenluft, E., Ernst, M. and Pine, D.S., 2010. Attention bias modification treatment: a meta-analysis toward the establishment of novel

	standard psychotherapy (e.g., cognitive behavior therapy)?	treatment for anxiety. *Biological Psychiatry*, *68*(11), pp.982-990. iii. Sportel, B. E., de Hullu, E., de Jong, P. J., & Nauta, M. H. (2013). Cognitive bias modification versus CBT in reducing adolescent social anxiety: a randomized controlled trial. *PLoS One*, *8*(5), e64355. iv. Britton, J. C., Suway, J. G., Clementi, M. A., Fox, N. A., Pine, D. S., & Bar-Haim, Y. (2014). Neural changes with attention bias modification for anxiety: a randomized trial. *Social Cognitive and Affective Neuroscience*, *10*(7), 913-920.
4 9/24/19	**Major Depressive Disorder** • What is major depressive disorder (MDD)? • Is MDD a single disorder? • What is anhedonia, and why may it be important for improving our understanding of MDD? • What are the neural correlates of anhedonia, and why may this prove important for elucidating pathways to MDD?	i. Monroe, S. M., & Anderson, S. F. (2015). Depression: The shroud of heterogeneity. *Current Directions in Psychological Science*, *24*(3), 227-231. ii. Pizzagalli, D. A. (2014). Depression, stress, and anhedonia: toward a synthesis and integrated model. *Annual review of clinical psychology*, *10*, 393-423. iii. Auerbach, R. P., Pisoni, A., Bondy, E., Kumar, P., Stewart, J. G., Yendiki, A., & Pizzagalli, D. A. (2017). Neuroanatomical prediction of anhedonia in adolescents. *Neuropsychopharmacology*, *42*(10), 2087. iv. Auerbach, R. P., Pagliaccio, D., & Pizzagalli, D. A. (in press). Toward in improved understanding of anhedonia. *JAMA Psychiatry*.
5 10/1/19	**Treatment for Major Depression in Adolescents** • What predicts treatment outcome? • CBT is a gold-standard treatment, but *why* does it work? • What are neural predictors of treatment response?	i. Brent, D. A., Kolko, D. J., Birmaher, B., Baugher, M., Bridge, J., Roth, C., & Holder, D. (1998). Predictors of treatment efficacy in a clinical trial of three psychosocial treatments for adolescent depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, *37*(9), 906-914. ii. McMakin, D. L., Olino, T. M., Porta, G., Dietz, L. J., Emslie, G., Clarke, G., ... & Shamseddeen, W. (2012). Anhedonia predicts poorer recovery among youth with selective serotonin reuptake inhibitor treatment–resistant depression. *Journal of the American Academy of Child & Adolescent Psychiatry*, *51*(4), 404-411.

		iii. Webb, C. A., Stanton, C., Bondy, E., Singleton, P., Pizzagalli, D. A., & Auerbach, R. P. (in press). Cognitive vs. behavioral skills in CBT for depressed adolescents: Disaggregating within-patient vs. between-patient effects on symptom change. *Journal of Clinical and Consulting Psychology*. iv. Forbes, E. E., Olino, T. M., Ryan, N. D., Birmaher, B., Axelson, D., Moyles, D. L., & Dahl, R. E. (2010). Reward-related brain function as a predictor of treatment response in adolescents with major depressive disorder. *Cognitive, Affective, & Behavioral Neuroscience*, *10*(1), 107-118.
6 10/8/19	**Marijuana Use in Adolescents** • How does early marijuana use impact the developmental trajectory from adolescence to adulthood? • What has been the impact of marijuana legalization on youth use? • How do social norms, social media, and exposure to pro-marijuana messages affect adolescent use?	i. Epstein, M., Hill, K. G., Nevell, A. M., Guttmannova, K., Bailey, J. A., Abbott, R. D., ... & Hawkins, J. D. (2015). Trajectories of marijuana use from adolescence into adulthood: Environmental and individual correlates. *Developmental Psychology*, *51*(11), 1650. ii. Brook, J. S., Zhang, C., Leukefeld, C. G., & Brook, D. W. (2016). Marijuana use from adolescence to adulthood: developmental trajectories and their outcomes. *Social Psychiatry and Psychiatric Epidemiology*, *51*(10), 1405-1415. iii. Rusby, J. C., Westling, E., Crowley, R., & Light, J. M. (2018). Legalization of recreational marijuana and community sales policy in Oregon: Impact on adolescent willingness and intent to use, parent use, and adolescent use. *Psychology of Addictive Behaviors*, *32*(1), 84. iv. Roditis, M. L., Delucchi, K., Chang, A., & Halpern-Felsher, B. (2016). Perceptions of social norms and exposure to pro-marijuana messages are associated with adolescent marijuana use. *Preventive Medicine*, *93*, 171-176.
7 10/15/19	**Marijuana Use and the Developing Brain** • What is the impact of marijuana use on brain function?	i. Lopez-Larson, M. P., Rogowska, J., & Yurgelun-Todd, D. (2015). Aberrant orbitofrontal connectivity in marijuana smoking adolescents. *Developmental Cognitive Neuroscience*, *16*, 54-62.

	• What is the impact of marijuana use on brain structure? • If marijuana use negatively affects brain development, what are the long-term consequences?	ii. Blest-Hopley, G., Giampietro, V., & Bhattacharyya, S. (2018). Residual effects of cannabis use in adolescent and adult brains–a meta-analysis of fMRI studies. *Neuroscience & Biobehavioral Reviews*. iii. Orr, J. M., Paschall, C. J., & Banich, M. T. (2016). Recreational marijuana use impacts white matter integrity and subcortical (but not cortical) morphometry. *NeuroImage: Clinical*, *12*, 47-56. iv. Weiland, B. J., Thayer, R. E., Depue, B. E., Sabbineni, A., Bryan, A. D., & Hutchison, K. E. (2015). Daily marijuana use is not associated with brain morphometric measures in adolescents or adults. *Journal of Neuroscience*, *35*(4), 1505-1512.
8 10/22/19	**Clarifying Risk for Psychosis** • Why do researchers study ultra high-risk individuals to learn more about psychosis? • What are clinical indicators and biological markers of conversion in high-risk youth? • How can RDoC help inform risk for psychosis?	i. Mechelli, A., Lin, A., Wood, S., McGorry, P., Amminger, P., Tognin, S., ... & Yung, A. (2017). Using clinical information to make individualized prognostic predictions in people at ultra high risk for psychosis. *Schizophrenia research*, *184*, 32-38. ii. Cannon, T. D., Chung, Y., He, G., Sun, D., Jacobson, A., Van Erp, T. G., ... & Cornblatt, B. (2015). Progressive reduction in cortical thickness as psychosis develops: a multisite longitudinal neuroimaging study of youth at elevated clinical risk. *Biological psychiatry*, *77*(2), 147-157. iii. Mittal, V. A., Bernard, J. A., & Northoff, G. (2017). What can different motor circuits tell us about psychosis? An RDoC perspective. *Schizophrenia Bulletin*, *43*(5), 949-955. iv. Bernard, J. A., Orr, J. M., & Mittal, V. A. (2017). Cerebello-thalamo-cortical networks predict positive symptom progression in individuals at ultra-high risk for psychosis. *NeuroImage: Clinical*, *14*, 622-628.
9 10/29/19	**Prevention and Treatment of Psychosis**	i. Bechdolf, A., Wagner, M., Ruhrmann, S., Harrigan, S., Putzfeld, V., Pukrop, R., ... & Bottlender, R. (2012). Preventing progression to first-episode psychosis in

	• Is it possible to prevent onset in people at high-risk for psychosis? • Is psychotherapy effective for psychosis? • What are effective internet-based approaches for treating psychosis? • Can we predict who responds to treatment during the first-episode of psychosis?	early initial prodromal states. *The British Journal of Psychiatry*, *200*(1), 22-29. ii. Turner, D. T., van der Gaag, M., Karyotaki, E., & Cuijpers, P. (2014). Psychological interventions for psychosis: a meta-analysis of comparative outcome studies. *American Journal of Psychiatry*, *171*(5), 523-538. iii. Álvarez-Jiménez, M., Gleeson, J. F., Bendall, S., Lederman, R., Wadley, G., Killackey, E., & McGorry, P. D. (2012). Internet-based interventions for psychosis: a sneak-peek into the future. *Psychiatric Clinics*, *35*(3), 735-747. iv. Koutsouleris, N., Kahn, R. S., Chekroud, A. M., Leucht, S., Falkai, P., Wobrock, T., ... & Hasan, A. (2016). Multisite prediction of 4-week and 52-week treatment outcomes in patients with first-episode psychosis: a machine learning approach. *The Lancet Psychiatry*, *3*(10), 935-946.
10 11/5/19	No Class (Election Day)	No Class (Election Day)
11 11/12/19	**Suicidal Thoughts and Behaviors** • What is the prevalence of suicidal thoughts and behaviors in adolescence? • What is the function of suicidal behaviors? • Does the media influence suicidal behaviors? • Are under-represented youth more at risk, and if so, why?	i. Nock et al. (2013). Prevalence, correlates, and treatment of lifetime suicidal behavior among adolescents: results from the National Comorbidity Survey Replication Adolescent Supplement. *JAMA Psychiatry*, *70*(3), 300-310. iii. Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science*, *18*(2), 78-83. iii. Gould, M. S. (2001). Suicide and the media. *Annals of the New York Academy of Sciences*, *932*(1), 200-224. iv. Wolford-Clevenger et al. (2018). Correlates of suicide ideation and behaviors among transgender people: A systematic review guided by ideation-to-action theory. *Clinical Psychology Review*.

11 11/19/19	**Suicidal Thoughts and Behaviors** • What predicts the transition from thinking about suicide to acting? • What are known short-term predictors of suicidal behaviors? • What prevents suicide in high-risk youth?	i. Torous, J., Larsen, M. E., Depp, C., Cosco, T. D., Barnett, I., Nock, M. K. & Firth, J. (2018). Smartphones, sensors, and machine learning to advance real-time prediction and interventions for suicide prevention: A review of current progress and next steps. *Current Psychiatry Reports, 20*, 51. ii. Kleiman, E. M., Turner, B. J., Fedor, S., Beale, E. E., Picard, R. W., Huffman, J. C., & Nock, M. K. (2018). Digital phenotyping of suicidal thoughts. *Depression and Anxiety, 35*, 601-608. iii. Auerbach NIMH Grant Specific Aims (general study overview from ongoing study of suicide in adolescents) iv. Kennard, B. D., Goldstein, T., Foxwell, A. A., McMakin, D. L., Wolfe, K., Biernesser, C., ... & Owen, V. (2018). As Safe as Possible (ASAP): a brief app-supported inpatient intervention to prevent postdischarge suicidal behavior in hospitalized, suicidal adolescents. *American Journal of Psychiatry*, *175*(9), 864-872.
13 11/26/19	**Research Domain Criteria** • How does RDoC differ from the DSM? • What are the pros and cons to using an RDoC approach? • How can this be applied to advance clinical research in adolescents? • What is the best way to move forward with clinical research – are we moving in parallel directions (i.e., DSM-based vs. RDoC-based research)?	i. Research Domain Criteria Domains and Constructs • Review on NIMH website ii. Kozak, M. J., & Cuthbert, B. N. (2016). The NIMH research domain criteria initiative: background, issues, and pragmatics. *Psychophysiology*, *53*(3), 286-297. iii. Lilienfeld, S. O., & Treadway, M. T. (2016). Clashing diagnostic approaches: DSM-ICD versus RDoC. *Annual review of clinical psychology*, *12*, 435-463. iv. Pornpattananangkul, N., Leibenluft, E., Pine, D., & Stringaris, A. (2019). Mapping anhedonia in youth: large-scale resting-state network, task-evoked activation, and phenotypic demarcation. *JAMA Psychiatry*.
14 12/3/19	**Technology and Adolescent Mental Health**	i. Grist, R., Porter, J., & Stallard, P. (2017). Mental health mobile apps for preadolescents and adolescents: a

	• Technology can be transformative, but is it effective for treatment mental health problems in adolescents? • Are certain symptoms or behaviors more *malleable* via smartphone apps and/or internet-based approaches? • When is assessment actually treatment, and is this one of the first steps for *just-in-time* interventions? • What are advantages to internet-based treatment approaches?	systematic review. *Journal of Medical Internet Research*, *19*(5). ii. Allen, N., Nelson, B., Brent, D., & Auerbach, R. P. (in press). Short-term prediction of suicidal thoughts and behaviors in adolescents: Can recent developments in technology and computational science provide a breakthrough? *Journal of Affective Disorders.* iii. Ebert, D. D., Zarski, A. C., Christensen, H., Stikkelbroek, Y., Cuijpers, P., Berking, M., & Riper, H. (2015). Internet and computer-based cognitive behavioral therapy for anxiety and depression in youth: a meta-analysis of randomized controlled outcome trials. *PloS one*, *10*(3), e0119895. iv. Franklin, J. C., Fox, K. R., Franklin, C. R., Kleiman, E. M., Ribeiro, J. D., Jaroszewski, A. C., ... & Nock, M. K. (2016). A brief mobile app reduces nonsuicidal and suicidal self-injury: Evidence from three randomized controlled trials. *Journal of Consulting and Clinical Psychology*, *84*(6), 544.