

## Evidence-based treatment protocols

DISORDER	RECOMMENDED VR PROTOCOL
Claustrophobia	Botella, C., Baños, R. M., Perpiñá, C., Villa, H., Alcañiz, M., and Rey, A. (1998). Virtual reality treatment of claustrophobia: a case report. <i>Behaviour Research and Therapy</i> , 36(2), 239-246
Fear of blood, needles, injuries	Wiederhold, B.K., Mendoza, M., Nakatani, T. Bulinger, A.H. & Wiederhold, M.D. (2005). VR for blood-injection-injury phobia. <i>Annual Review of CyberTherapy and Telemedicine</i> , 3, 109-116.
Claustrophobia	Botella, C., Baños, R. M., Perpiñá, C., Villa, H., Alcañiz, M., and Rey, A. (1998). Virtual reality treatment of claustrophobia: a case report. <i>Behaviour Research and Therapy</i> , 36(2), 239-246
Fear of flying	Cardos, R. A., David, O. A., and David, D. O. (2017).Virtual reality exposure therapy in flight anxiety: A quantitative meta-analysis. <i>Computers in Human Behavior</i> , 72, 371-380.
Acrophobia	Coelho, C. M., Waters, A. M., Hine, T. J., and Wallis, G. (2009). The use of virtual reality in acrophobia research and treatment. <i>Journal of Anxiety Disorders</i> , 23(5), 563-574.
Fear of driving	Wald, J. and Taylor, S. (2000). Efficacy of virtual reality exposure therapy to treat driving phobia: a case report. <i>Journal of Behavior Therapy and Experimental Psychiatry</i> , 31(3), 249-257.
Fear of animals	Miloff, A., Linder, Ph., Hamilton, W., Reuterskiold, L., Andersson, G., and Carlbring, P. (2016). Single-session gamified virtual reality exposure therapy for spider phobia vs. traditional exposure therapy: study protocol for a randomized

	controlled non-inferiority trial. <i>Trials</i> , (17), 60.
Soxial anxiety	Anderson, P. L., and Price, M. (2013). Virtual Reality Exposure Therapy for Social Anxiety Disorder: A Randomized Controlled Trial. <i>Journal of Consulting and Clinical Psychology</i> , 81(5), 751-760.
Fear of public speaking	Safir, M. P., Wallach, H. S., and Bar-Zvi, M. (2012). Virtual Reality Cognitive-Behavior Therapy for Public Speaking Anxiety: One-Year Follow-Up. <i>Behavior Modification</i> 36(2), 235-246..
Generalized anxiety	Gorini, A., and Riva, G. (2008). The potential of Virtual Reality as anxiety management tool: a randomized controlled study in a sample of patients affected by Generalized Anxiety Disorder. <i>Trials</i> , 9, 25.
Agoraphobia	Peñate W, Pitti CT, Bethencourt JM, de la Fuente J, Gracia R. The effects of a treatment based on the use of virtual reality exposure and cognitive-behavioral therapy applied to patients with agoraphobia. <i>Int J Clin Health Psychol</i> 2008;8:5–22)
Test anxiety	North M, North SM, Crunk J (2004) Virtual reality combats test anxiety: a case study report. <i>Studies in Health Technologies and informatics</i> . 98:278-80
OCD	Kim, K., Kim, Ch. H., Kim, S. Y., Roh, D., Kim., S. I. (2009). Virtual Reality for Obsessive-Compulsive Disorder: Past and the Future. <i>Official Journal of Korean Neuropsychiatric Association</i> , 6, 115-121
Pain distraction	- Malloy K, Loenard S (2010) The effectiveness of virutal reality distraction for pain reduction: A systematic review - Gold, J. I., Kant, A. J., Kim, S. H., y Rizzo, A. S. (2005). Virtual anesthesia: The use of virtual reality for pain distraction during acute medical interventions. <i>Seminars in Anesthesia, Perioperative Medicine and Pain</i> , 24(4), 203-210. <a href="https://doi-org.sire.ub.edu/10.1053/j.sane.2005.10.005">https://doi-org.sire.ub.edu/10.1053/j.sane.2005.10.005</a>

	<p>- Jones, T., Moore, T., y Choo, J. (2016). The Impact of Virtual Reality on Chronic Pain. <i>PLoS ONE</i>, 11(12), 1-10.</p>
Eating disorders	<p>- Sara Fonseca-Baeza, G. C. &amp; R. M. B. (2018). An intervention protocol proposal to modify the body image disturbance using Virtual Reality Sara. <i>CALIDAD DE VIDA Y SALUD</i> 2018, 11(2), 48–61.</p> <p>- Clus, D., Larsen, M. E., Lemey, C., &amp; Berrouguet, S. (2018). The Use of Virtual Reality in Patients with Eating Disorders: Systematic Review. <i>J Med Internet Res</i>, 20(4), e157. <a href="https://doi.org/10.2196/jmir.7898">https://doi.org/10.2196/jmir.7898</a></p>
Adaptative disorders	<p>- Quero, S.; Andreu-Mateu, S.; Moragrega, I.; Baños, R.M.; Molés, M.; Nebot, S.; Botella, C. (2017). Un programa cognitivo-conductual que utiliza la realidad virtual para el tratamiento de los trastornos adaptativos: una serie de casos. <i>Revista Argentina de - Clínica Psicológica</i>,</p> <p>- Zeng, N., Pope, Z., Lee, J., &amp; Gao, Z. (2018). Virtual Reality Exercise for Anxiety and Depression: A Preliminary Review of Current Research in an Emerging Field. <i>Journal of Clinical Medicine</i>, 7(3), 42. <a href="https://doi.org/10.3390/jcm703004226">https://doi.org/10.3390/jcm703004226</a>, 5–18. <a href="https://doi.org/10.24205/03276716.2017.1001">https://doi.org/10.24205/03276716.2017.1001</a></p>
PTSD	<p>Botella, C., Serrano, B., Baños, R., &amp; García-Palacios, A. (2015). Virtual reality exposure-based therapy for the treatment of post-traumatic stress disorder: a review of its efficacy, the adequacy of the treatment protocol, and its acceptability. <i>Neuropsychiatric Disease and Treatment</i>, 11, 2533–2545. <a href="https://doi.org/10.2147/NDT.S89542">https://doi.org/10.2147/NDT.S89542</a></p>
ADHD	<p>- Shema-Shiratzky, S., Brozgol, M., Cornejo-Thumma, P., Geva-Dayan, K., Rotstein, M., Leitner, Y., ... Mirelman, A. (2018). Virtual reality training to enhance behavior and cognitive function among children with attention-deficit/hyperactivity disorder: brief report. <i>Developmental Neurorehabilitation</i>. <a href="https://doi.org/10.1080/17518423.2018.1476602">https://doi.org/10.1080/17518423.2018.1476602</a></p> <p>- Bashiri, A., Ghazisaeedi, M., &amp; Shahmoradi, L. (2017). The opportunities of virtual reality in the rehabilitation of children with attention deficit hyperactivity disorder: a literature review. <i>Korean J Pediatr</i>, 60(11), 337–343. <a href="https://doi.org/10.3345/kjp.2017.60.11.337">https://doi.org/10.3345/kjp.2017.60.11.337</a></p>

Pain management	<ul style="list-style-type: none"> <li>- Hunter G. Hoffman, David R. Patterson, Gretchen J. Carrouger, M.N., and S. R. S. (2001). Effectiveness of Virtual Reality–Based Pain Control With Multiple Treatments. <i>The Clinical Journal of Pain</i>, 17, 229–235.</li> <li>- Tashjian, V. C., Mosadeghi, S., Howard, A. R., Lopez, M., Dupuy, T., Reid, M., ... Spiegel, B. (2017). Virtual Reality for Management of Pain in Hospitalized Patients: Results of a Controlled Trial. <i>JMIR Mental Health</i>, 4(1), e9. <a href="https://doi.org/10.2196/mental.738">https://doi.org/10.2196/mental.738</a></li> </ul>
Efficiency of interventions with virtual reality	<ul style="list-style-type: none"> <li>- Bouchard, S., Dumoulin, S., Robillard, G., Guitard, T., Klinger, E., Forget, H., ... Roucaut, F. (2017). Virtual reality compared with in vivo exposure in the treatment of social anxiety disorder: a three-arm randomised controlled trial. <i>The British Journal of Psychiatry</i>, 210, 276–283. <a href="https://doi.org/10.1192/bjp.bp.116.184234">https://doi.org/10.1192/bjp.bp.116.184234</a></li> <li>- Maples-Keller, J. L., Bunnell, B. E., Kim, S.-J., &amp; Rothbaum, B. O. (2017). The Use of Virtual Reality Technology in the Treatment of Anxiety and Other Psychiatric Disorders. <i>Harvard Review of Psychiatry</i>, 25(3), 103–113. <a href="https://doi.org/10.1097/HRP.000000000000138">https://doi.org/10.1097/HRP.000000000000138</a></li> <li>- Lindner, P., Miloff, A., Hamilton, W., Reuterskiöld, L., Andersson, G., Powers, M. B., &amp; Carlbring, P. (2017). Creating state of the art, next-generation Virtual Reality exposure therapies for anxiety disorders using consumer hardware platforms: design considerations and future directions. <i>Cognitive Behaviour Therapy</i>,. <a href="https://doi.org/10.1080/16506073.2017.1280843">https://doi.org/10.1080/16506073.2017.1280843</a></li> <li>- Morina, N., Ijntema, H., Meyerbröker, K., &amp; Emmelkamp, P. M. G. (2015). Can virtual reality exposure therapy gains be generalized to real life? A meta-analysis of studies applying behavioral assessments. <i>Behaviour Research and Therapy</i>, 74, 18–20. Retrieved from <a href="https://ac-els-cdn-com.sire.ub.edu/S0005796715300334/1-s2.0-S0005796715300334-main.pdf?_tid=2b992d94-f41b-414e-983a-948ea5d18f77&amp;acdnat=1523975328_f66c32b99ebaff2ba24db1d0dcc3ccc4">https://ac-els-cdn-com.sire.ub.edu/S0005796715300334/1-s2.0-S0005796715300334-main.pdf?_tid=2b992d94-f41b-414e-983a-948ea5d18f77&amp;acdnat=1523975328_f66c32b99ebaff2ba24db1d0dcc3ccc4</a></li> </ul>