

Attachment and autonomic regulation: Development of BioDreAMS - version 2.0 and application to a non-clinical group

Results:

Based on recent technological advances, we developed (Bial Grant 43/96), a fully digital multimedia system named *BioDReAMS* (Bio Dual-channel and Representation of Attachment Multimedia System) that allows a synchronous collection of video and audio information, ECG signals and skin conductance during the *Adult Attachment Interview* (AAI). The present project aims: 1) to improve *BioDReAMS*, by developing a new version; 2) to apply *BioDReAMS 2.0* to a non-clinical group of 50 young females that will be compared to a matched clinical eating disorders sample.

BioDReAMS 2.0 improved at data acquisition, video, program structure, and document mode.

Data from 50 females, between 15-36 years old (M=21.82; D.P.=4.92), from different educational and occupational backgrounds has been collected. Eleven subjects were matched, based on social-demographical information, with 11 patients diagnosed with eating disorders. The AAI scored with Kobak's Q-Sort method was used to assess 3 attachment patterns, mega-items and deactivation-hyperactivation strategies. The relations between these attachment parameters and two physiological measures, heart rate (HR) and skin conductance level (SCL), during the AAI, were examined using *BioDReAMS 2.0*.

Within the non-clinical group, 33 were classified as secure, 11 as dismissing, and 6 as preoccupied. In the clinical sample, 4 patients were secure, 4 preoccupied and 3 dismissing. Compared to the non-clinical, the clinical group showed higher scores in family disruption, preoccupied, and family enmeshment mega-items. Non-clinical subjects showed increased sympathetic activity when talking about problems, separations, and deaths, compared to their resting baseline. Insecure subjects showed tendencies for highest parasympathetic activity when talking about threats. In the clinical sample, moderate to high correlations were found between deactivation and increased parasympathetic activity in the response to problems, separations, rejections, deaths, and traumatic experiences.

Published Works:

Soares, I., Dias, P., Fernandes, C., Klein, J., Freitas, A., Ferreira, A., Felgueiras, I., Pinho, A., Figueiredo, B., Jongenelen, I., Matos, R., Gonçalves, S., Machado, P. & Cunha, J. (2002). Actividade psicofisiológica durante a AAI em pacientes com perturbações alimentares: estudo preliminar com análise de casos. *Psicologia: Teoria, Investigação e Prática*, 7 (1), 143-158.

Zhan-Jian, L., Soares, I., Fernandes, JM & Cunha, JP.(2004). A New Multimedia System for Assessment of Attachment and Physiological Measures: An Enhanced PC-

based Tool for AAI Assessment, *International Journal of Psychophysiology*, vol. 54, pp. 140.

Dias, P., Soares, I., Klein, J.M., Fernandes, C., Machado, P., Silva, C., & Cunha, J.P. (2005). Attachment Organization and Autonomic Regulation in Eating Disorders Assessed by a Digital Multimédia System. (Abstract). *Psychophysiology*, 42 (Suplement 1), 50.

Klein, J.M., Dias, P., Soares, I., Machado, P.P.P., Cunha, J.P., Silva, C., & Fernandes, C. (2005). Autonomic Correlates of Attachment Organizations and Experiences: Preliminary Data. (Abstract). *Psychophysiology*, 42 (Suplement 1), 74.

Soares, I. & Dias, P. (2007). Apego y psicopatología en jóvenes y adultos: contribuciones recientes de la investigación. *International Journal of Clinical and Health Psychology*, vol. 7, 1.

Soares, I. & Dias, P. (2007). Apego y psicopatología en jóvenes y adultos: Contribuciones recientes de la investigación. *International Journal of Clinical and Health Psychology*, 2007, 7, 1, 177-195.

Soares, I., Machado, P., Dias, P. & Klein, J. (2008) Bindung und Ess-Störungen. In B. Strauss (Ed), *Bindung und psychopathologie* (pp. 188-211) Munchen: Klett-Cotta

Dias, P., Soares, I., Klein, J., Cunha, J., & Roisman, G. (2011). Autonomic Correlates of Attachment Insecurity in a Sample of Women with Eating Disorders. *Attachment and Human Development*, 13, 2, 155-168.

Scientific meetings: papers and poster presented

Dias, P., Soares, I., Fernandes, C., Klein, J., Machado, P. & Cunha, J. P. (2002, Abril). Vinculação e regulação autonómica nas perturbações alimentares: resultados preliminares. (2002, Abril). Paper presented at the *Jornadas Anuais da Associação Portuguesa de Terapia do Comportamento*. Coimbra, Hospitais da Universidade de Coimbra.

Dias, P., Soares, I., Fernandes, C., Klein, J., Alves, A., Felgueiras, I., Ferreira, A.I., Pinho, A., Neves, L., Figueiredo, B., Jongenelen, I., Matos, R., Gonçalves, S., Machado, P. & Cunha, J.P. (2002, Junho). Attachment organization and autonomic regulation in eating disordered patients. Poster presented at the *Annual Meeting of the Society for Psychotherapy Research*. Santa Barbara: USA.

Dias, P., Klein, J., Cunha, J., Soares, I., Fernandes, C., Tavares, A. G., Mota, C., Lourenço, A., & Candeias, I. (2003, Outubro). Um modelo de Análise Psicofisiológica da Regulação Emocional durante a AAI. Paper presented at the *V Simpósio Nacional de Investigação em Psicologia*, Fundação Calouste Gulbenkian, Lisboa, Portugal.

- Dias, P., Klein, J., Soares, I., Fernandes, C., & Cunha J.P. (2003, Outubro). Vinculação e Regulação Autónómica nas PCA. Paper presented at the *V Simpósio Nacional de Investigação em Psicologia*, Fundação Calouste Gulbenkian, Lisboa, Portugal.
- Dias, P., Soares, I., Fernandes, C., Klein, J., Machado, P.P. & Cunha, J.P. (2004, Abril). Organização da vinculação e regulação autónómica nas Perturbações do Comportamento Alimentar. Paper presented at *EsPassos da Psicologia: Investigação e Intervenção*, Braga, Portugal.
- Dias P., Soares, I., Fernandes, C., Klein, J., Machado, P. & Cunha, J. (2004, Maio). Attachment and autonomic regulation in eating disorders. Paper presented at the *Biennial Conference of the European Association for Research on Adolescence*. Faculdade de Psicologia e Ciências da Educação da Universidade do Porto, Porto, Portugal.
- Dias P., Soares, I., Fernandes, C., Klein, J., Machado, P. & Cunha, J. (2004, Maio). Organização da vinculação e regulação autónómica nas perturbações alimentares. Paper presented at the *VI Congresso de Psicologia do ISMAI – Relações [Inter]Pessoais*. Maia, Portugal.
- Dias P., Soares, I., Fernandes, C., Klein, J., Machado, P. & Cunha, J. (2004, Junho). Attachment and autonomic regulation in eating disorders. Paper presented at the *35th Annual Meeting of the Society for Psychotherapy Research*. Roma, Itália.
- Soares, I., Cunha, J.P. Li, Z-J. Dias, P. & Klein, J. (2005, Abril). Assessment of Attachment and Physiological Correlates Based on a Multimédia Information System: BioDReAMS 2.0. Poster presented at the *Biennial Meeting da Society for Research in Child Development*, Atlanta, Geórgia, U.S.A.
- Dias, P., Soares, I., Fernandes, C., Machado, P., Klein, J., & Cunha, J.P. (2005, Abril). Attachment Organization and Autonomic Regulation in Eating Disorders Assessment by Multimédia System. Poster presented at the *Biennial Meeting da Society for Research in Child Development*, Atlanta, Geórgia, U.S.A.
- Klein, J.M., Dias, P., Soares, I., Li, Z.-J., Cunha, J.P., Fernandes, C. & Machado, P.P.P. (2005, Junho). Autonomic correlates of attachment organizations and experiences: preliminary data with a non-clinical sample. Poster presented at the *36th Annual Meeting of the Society for Psychotherapy Research*. Montreal, Canada.
- Dias, P., Soares, I., Fernandes, C. Klein, J., Li, Z.-J., Machado, P., Cunha, J.P., (2005, Junho). Autonomic correlates of attachment organizations in eating disorders. Poster presented at the *36th Annual Meeting of the Society for Psychotherapy Research*. Montreal, Canada.
- Dias, P., Soares, I., Klein, J.M., Fernandes, C., Machado, P., Silva, C., & Cunha, J.P. (Setembro, 2005). Attachment Organization and Autonomic Regulation in Eating

Os textos são da exclusiva responsabilidade dos autores
All texts are of the exclusive responsibility of the authors

Disorders Assessed by a Digital Multimédia System. Poster presented at the *45th Annual Meeting of the Society for Psychophysiological Research*. Lisboa Portugal.

Klein, J.M., Dias, P., Soares, I., Machado, P.P.P., Cunha, J.P., Silva, C., & Fernandes, C. (Setembro, 2005). Autonomic Correlates of Attachment Organizations and Experiences: Preliminary Data. Paper presented at the *45th Annual Meeting of the Society for Psychophysiological Research*. Lisboa Portugal.

Dias, P., Klein, J., Soares, I., Fernandes, C., Cunha, J.P., Zhan-Jian, L., Silva, C. & Machado, P. (Julho, 2006) Psychophysiological correlates of the Adult attachment Interview: Preliminary data with clinical and non-clinical groups. Poster presented at the *Meeting of the International Association for Relationships Research*, Crete, Greece.

Researcher's Contacts:

Isabel Soares (coordinator)
Universidade do Minho, Departamento de Psicologia
Campus de Gualtar, 4700 Braga, Portugal
tel: +351-253-604257
fax: + 351-253-604221
e-mail: isoares@iep.uminho.pt

João Paulo Cunha,
Universidade de Aveiro
Instituto de Engenharia Electrónica e Telemática de Aveiro (IEETA)/ Departamento de Electrónica, Telecomunicações e Informática(DTE)
Campus Universitário de Santiago
3810-193 Aveiro, Portugal
e-mail: jcunha@det.ua.pt
<http://www.ieeta.pt/sias>
<http://www.det.ua.pt>

Carlos Fernandes
Universidade de Aveiro
Departamento de Ciências da Educação
Campus Universitário de Santiago
3810-193 Aveiro, Portugal
e-mail: csilva@dce.ua.pt

Paulo Machado
Universidade do Minho, Departamento de Psicologia
Campus de Gualtar, 4700 Braga, Portugal
tel: +351-253-604257
fax: + 351-253-604221
e-mail: pmachado@iep.uminho.pt

Os textos são da exclusiva responsabilidade dos autores
All texts are of the exclusive responsibility of the authors

Ovídio Costa
Universidade do Porto, Faculdade de Medicina
Al. Prof. Hernâni Monteiro 4200 - 319 Porto, Portugal
e-mail: ovidio@med.up.pt

Maria Carolina Silva
Universidade do Porto, Instituto de Ciências Biomédicas Abel Salazar
Largo Prof. Abel Salazar, 2, 4099-003 Porto, Portugal
telefone: 222062277
e-mail: carolina@icbas.up.pt