

In Search of Novel and More Effective Psychological Treatments for Chronic Pain: The “Algea” Research Project

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The aim of this paper is to present the objectives and current state of an ongoing multilevel collaborative research project for the study of pain. “Algea”, the pain and suffering deity in ancient Greek mythology, was the name given to this project, which aims to investigate critical factors involved in the experience of pain, and suffering. Moreover, the project will examine the effects of a novel approach to treatment based on Acceptance and Commitment Therapy. This is a collaborative project between the University of Cyprus, the University of Crete, and the Cyprus Institute of Neurology and Genetics.

Algea is the first systematic effort to examine pain related parameters and evaluate a novel therapeutic approach aimed at alleviating the suffering and interference in living experienced by individuals with one or more chronic pain conditions (e.g., rheumatoid arthritis). The specific objectives of the “Algea” project include: a) understanding the contributing factors involved in the experience of pain in individuals with chronic pain (CP) conditions, their dyadic

interactions with their partners, and differences with individuals suffering from other chronic illnesses not involving pain; b) designing a culturally sensitive intervention based on new empirical findings stemming from third-wave CBTs for use in clinical settings (i.e., CP organizations, CP rehabilitation and outpatients units, etc.); c) evaluating via randomized clinical trials the acceptability and effectiveness of this intervention especially in reducing suffering, interference of pain and medical utilization in various chronic pain conditions; d) training interested health professionals in this new approach and widely disseminating it into clinical settings; and e) translating the intervention into a digitally-based intervention so as to be more accessible and reach a wider audience of CP sufferers.

The project employs an integrative bio-psychosocial and functional contextualistic perspective (theoretical view emphasizing “the importance of predicting and influencing psychological events (including thoughts, feelings, and behaviors) with precision, scope, and depth, by focusing on manipulable variables in their context”; Hayes, Barnes-Holmes, & Roche, 2001) by focusing on alleviating suffering and the full range of social and psychological consequences involved in the experience of pain (Turk & Gatchel, 2002). To this end, the project assimilates previous illness adaptations models, such as Leventhal’s self-regulation model (Leventhal et al., 1997), with more modern frameworks, such as the Psychological Flexibility model (McCracken & Morley, 2014) and the therapeutic approach of Acceptance and Commitment Therapy (ACT; Hayes et al., 2011). The ultimate goal of the project is not the direct

reduction of pain symptoms but instead the facilitation of better pain adjustment, less suffering and life interference associated with CP (see McCracken & Vowles, 2014, for a review). The resulting digitalized intervention aims to make use of innovations in technology and digitalized health care so as to deliver effective services to all patients who may have difficulty to attend traditional (i.e., face-to-face) treatment modes.

The Algea project (<http://ucyweb.ucy.ac.cy/algea>) aspires to create a more patient-centered care context in which Physicians, Clinical Health Psychologists, caregivers and/or significant others along with the CP sufferer, work collaboratively to achieve the common goal of better pain adjustment and living a valued life, even if pain is a reality.

To this end, five interrelated research studies comprised this project. The first study involved the Greek validation of various pain-related measures of interest to this project, including the Chronic Pain Acceptance Questionnaire (CPAQ; see Vasiliou, Karekla, Michaelides, & Kasinopoulos, 2017) and the Psychological Inflexibility in Pain scale (PIPS-II; see Vasiliou, Karekla, Michaelides, & Kasinopoulos, submitted). The second study investigated mechanisms related to CP adaptation. Specifically, it examined mediating and moderating factors drawn from third-wave CBT approaches (e.g. pain acceptance) between self-regulation related pathways (e.g. "illness representations-beliefs-pain interference") and adaptation to CP (e.g., physical and psychological functioning). It also compared CP patients with individuals suffering from other chronic conditions not involving pain (e.g., respiratory or cardiovascular problems) on the various constructs of interest (e.g. pain coping responses) so as to gain a better understanding of the pain experience and its mechanisms. Further, it examined the CP dyad "patients-spouses interaction" and its impact on the CP experience. Results from these studies will contribute to the tailoring and improvement of existing treatments

for the management of CP and its resulting consequences.

Studies III, IV and V included the development of new treatment protocols developed from the findings of the previous steps and based on third-wave CBT approaches. These studies included randomized control trials (see clinicaltrials.gov registry reference: NCT02734992) in order to: a) examine the effectiveness and efficacy of these protocols across different pain conditions (e.g. rheumatoid arthritis, migraine headaches etc.); b) explore the proposed mechanisms of change (i.e., those stemming from the psychological flexibility model) in mediating the resulting outcomes. In the process of conducting these trials, numerous health and mental health care providers received training and supervision in working and delivering such interventions.

The treatment protocols, which were developed for the purposes of our studies, followed recent research evidence suggesting that attempts at modifying internal pain related experiences (e.g., thoughts, feelings, sensations) in order to achieve pain alleviation are only short-lived and may in the long-run lead to more pain and suffering (see McCracken & Vowles, 2014). Acceptance and Commitment Therapy, employed in the creation of the specified protocols, targets valued based living via the acceptance of all internal pain-related experiences and regards them for what they are (e.g., see thoughts as thoughts, "I have the thought that my pain will get worse if I go out") and not for what the person believes they may be (e.g., thoughts as the absolute truth, "I am sure that my pain will get worse if I go out, so I better stay home"). Techniques utilized included mindfulness, acceptance, cognitive defusion, self-compassion, values exploration, and committed action.

Even though the division 12 of the American Psychological Association (APA, Division 12, 2012) recommends ACT for CP as an empirically supported treatment for the management of general CP

conditions, very few RCTs exist to investigate ACT and compare it to other treatments and only a handful of trials have been conducted for specific categories of chronic pain (e.g. chronic headaches). Even fewer studies exist that examine the specific mechanisms of action implicated in treatment outcome findings. As a way to expand this literature, studies III & IV examined not only the effectiveness of the proposed approach in achieving valued living with chronic pain, but it also examined the mechanism involved in any noted treatment change. Given the dearth of ACT based studies for the management of head pain, despite ACT being considered an empirically supported treatment for headaches, Study IV examined the efficacy of an ACT-based intervention for patients with primary headaches in a randomized clinical trial (clinical trials.gov registry reference: NCT02734992).

Finally, Study V involves the development and implementation of an online web-based intervention and a smartphone application, named "ALGEApp" (www.algeapp.com, in Greek). CP patients are faced with surmountable problems, such as dexterity issues, lack of access to specialized care centers, mobility difficulties, financial barriers, and even the cultural stigma of seeking psychological treatment in remote areas or small communities. The development of focused digitalized (web-based) psychological interventions, especially when these are grounded in solid theory and empirical evidence, can be of particular use for CP sufferers as they may promote behavioural changes and facilitate CP management (Brouwer et al., 2010; Brug et al., 2005; De Nooijer et al., 2005; Cuijpers, Straten, & Andersson, 2008). Very few studies have so far investigated the effectiveness of web-based ACT interventions on CP management (Buhrman et al., 2013; Trompetter, et al., 2015). Also, none of these programs have utilized the Persuasive System Design (PSD) methodology in creating attractive content that would capture the user and aid in treatment

engagement, which was a major aim of this study. Thus, we believe that an intervention such as the "ALGEApp" promises great potential for users who will be able to conveniently access effective material on demand and at their own time, location, and pace.

In conclusion, the Algea project aims to build a new patient-centered environment for the management of chronic pain aiming at valued living (i.e., living in according to ones' stated values (e.g., having close and loving relationships) even when pain is present) in all pain sufferers. Currently, the data from studies I and II, which are completed, are being analyzed and the initial findings are submitted for publication. The intervention studies (studies III – V) are still under way and soon we will have the first results. Our hope is that in the near future we will be able to conclude the entire Algea project and present the final findings and outcomes of this endeavor.

Acknowledgments

This project was funded by "The European Territorial Cooperation programs - INTERREG IV C interregional programme, "Greece- Cyprus." For further information about the project visit <http://ucyweb.ucy.ac.cy/algea>

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