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Efficacy of an app-based treatment for anxiety disorders including exposure in virtual reality – a randomized controlled trial

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Introduction: Anxiety disorders are among the most prevalent mental disorders. However, only a minority of patients receives adequate psychotherapeutic treatment despite strong empirical evidence for the efficacy of CBT in anxiety disorders (Marcks *et al.* Psychiatr Serv 2009; 60 823-830). App-based psychotherapy can help to reduce this massive treatment gap.
Objectives: We aimed at evaluating the efficacy of an app-based treatment for anxiety disorders including exposure in virtual reality.
Methods: The randomized controlled trial was conducted in two university outpatient treatment centers in Northern Germany. Patients were diagnosed with agoraphobia (AP; with or without panic disorder; n=103), panic disorder (PD; n=84) or social anxiety disorder (SAD; n=110) and were randomly assigned to either the app-based intervention or treatment as usual (up to 6 sessions of supportive therapy). The app was developed based on evaluated CBT manuals and includes 14 hours of audio and video content and 15 disorder specific virtual reality exposure scenarios. Participants in the intervention groups also received two appointments with a therapist during the app-based treatment. Primary outcome was the change in Beck Anxiety Inventory (BAI) score pre to post (after 6 months). Mixed ANOVAs were conducted in intention to treat and completer analyses. Secondary outcomes were disorder specific questionnaires (Liebowitz Social Anxiety Scale LSAS for SAD and Panic and Agoraphobia Scale PAS for AP and PD) and health related quality of life measured with a single item (L-1).
Results: In the ITT analysis, the interaction effect between group and time was significant in patients with AP as well as in patients with PD (AP: p=.014, partial η^2=.06; PD: p=.028, partial η^2=.06). This indicates a stronger improvement of symptoms in the intervention group compared to the control group. In patients with SAD, there was no significant interaction effect (p=.101, partial η^2=.03). The disorder specific measures LSAS and PAS showed a significantly stronger decrease in the intervention group than in the control group for each of the specific disorders. Concerning quality of life, a stronger improvement in the intervention group was only found in patients with PD.
Conclusions: A stronger symptom reduction in the app-based intervention group compared to the control group could be found in patients with AP (BAI/PAS), PD (BAI/PAS) and SAD (LSAS). This is particularly remarkable as the app was compared to an active control group with up to 6 sessions of psychotherapy. Effect sizes were comparable to those found in studies comparing face-to-face CBT to an active control group. The lack of an intervention-specific effect on BAI scores in patients with SAD might be due to the poor sensitivity of the BAI for the specific symptoms of SAD.

Disclosure of Interest: None Declared

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Vickybot, a chatbot for anxiety-depressive symptoms and work-related burnout

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Introduction: A significant proportion of people attending Primary Care (PC) have anxiety-depressive symptoms and work-related burnout and there is a lack of resources to attend them. The COVID-19 pandemic has worsened this problem, particularly affecting healthcare workers, and digital tools have been proposed as a workaround.
Objectives: We present the development, feasibility and effectiveness studies of chatbot (Vickybot) aimed at screening, monitoring, and reducing anxiety-depressive symptoms and work-related burnout in PC patients and healthcare workers.
Methods: User-centered development strategies were adopted. Main functions included self-assessments, psychological modules, and emergency alerts. (1) Simulation: HCs used Vickybot for 2 weeks to simulate different possible clinical situations and evaluated their experience. (3) Feasibility and effectiveness study: People consulting PC or healthcare workers with mental health problems were offered to use Vickybot for one month. Self-assessments for anxiety (GAD-7) and depression (PHQ-9) symptoms, and work-related burnout (based on the Maslach Burnout Inventory) were administered at baseline and every two weeks. Feasibility was determined based on the combination of both subjective and objective user-engagement Indicators (UEIs). Effectiveness was measured using paired t-tests as the change in self-assessment scores.
Results: (1) Simulation: 17 HCs (73% female; mean age=36.5±9.7) simulated different clinical situations. 98.8% of the expected modules were recommended according to each simulation. Suicidal alerts were correctly activated and received by the research team. (2) Feasibility and effectiveness study: 34 patients (15 from PC and 19 healthcare workers; 77% female; mean age=35.3±10.1) completed the first self-assessments, with 34 (100%) presenting anxiety symptoms, 32 (94%) depressive symptoms, and 22 (64.7%) work-related burnout. Nine (26.5%) patients completed the second self-assessments after 2-weeks of use. No significant differences were found for anxiety [t(8) = 1.000, p = 0.347] or depressive [t(8) = 0.400, p = 0.700] symptoms, but work-related burnout was significantly reduced [t(8) = 2.874, p = 0.021] between the means of the first and second self-assessments. Vickybot showed high subjective-UEIs, but low objective-UEIs (completion, adherence, compliance, and engagement).
Conclusions: The chatbot proved to be useful in screening the presence and severity of anxiety and depressive symptoms, in reducing work-related burnout, and in detecting suicidal risk. Subjective perceptions of use contrasted with low objective-use metrics. Our results are promising, but suggest the need to adapt