

**Online Supplement**

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**Search methodology**

**INITIAL SEARCH (for original study of the use of technology in the clinical care of both anxiety and depressive disorders):**

**DATABASE SEARCHED & TIME PERIOD COVERED:**

PubMed – From inception to 6/28/2017

**LANGUAGE:**

English

**SEARCH STRATEGY:**

"Telemedicine"[Mesh] OR telemedicine[tiab] OR telehealth[ti] OR email[tiab] OR internet[ti] OR video[tiab] OR videos[tiab] OR skype[tiab] OR computer-based OR phone-based OR telephone-based OR web-based[tiab] OR computerized OR smartphone OR avatar OR "information and communication technology" OR ict OR cell phone\* OR mobile phone\* OR "interactive voice response" OR text message\* OR "digital communication" OR "e-health" OR (virtual AND communicat\*) OR "interactive video" OR web-cam\* OR webcam\* OR remote monitor\* OR remotely monitor\* OR two-way camera\* OR personal monitor\* OR web-based portal\* OR social network\* OR "secure chat" OR chatroom\* OR chat room\* OR online[tiab] OR online[ot] OR information technolog\*

AND

"Anxiety Disorders"[Mesh] OR "Depressive Disorder"[Mesh] OR anxiety OR phobia\* OR panic OR depressive disorder\* OR depression[tiab] OR depression[ot] OR depressive[tiab] OR depressive[ot] OR dysthymi\*

AND

“Professional-Patient Relations”[mh] OR “Health Services Accessibility”[mh] OR physician-patient relation\* OR patient-physician relation\* OR doctor-patient relation\* OR patient-doctor relation\* OR access\*[tiab] OR access\*[ot]

AND

randomi\* OR "random allocation" OR rct\* OR Filters: Randomized Controlled Trial

=====  
**DATABASE SEARCHED & TIME PERIOD COVERED:**

PsycINFO – From inception to 6/28/2017

**LANGUAGE:**

English

**SEARCH STRATEGY:**

TI, SU, AB ( telemedicine OR telehealth OR email OR internet OR video OR videos OR skype OR computer-based OR phone-based OR telephone-based OR web-based OR computerized OR smartphone OR avatar OR "information and communication technology" OR ict OR "cell phone" OR "cell phones" OR cellphone\* OR "mobile phone" OR "mobile phones" OR "interactive voice response" OR "text message" OR "text messages" OR "text messaging" OR "digital communication" OR "e-health" OR (virtual AND communicat\*) ) OR DE "Information Technology" OR DE "Automated Information Processing" OR DE "Bioinformatics" OR TI, SU, AB ( "interactive video" OR web-cam\* OR webcam\* OR "remote monitoring" OR "remote monitor" OR "remote monitors" OR "remotely monitor" OR "remotely monitoring" OR "two-way camera" OR "two-way cameras" OR "personal monitor" OR

"personal monitors" OR "web-based portal" OR "web-based portals" OR "social network" OR "social networks" OR "social networking" OR chatroom\* OR "chat room" OR "chat rooms" OR online )  
AND

DE "Major Depression" OR DE "Anaclitic Depression" OR DE "Dysthymic Disorder" OR DE "Endogenous Depression" OR DE "Late Life Depression" OR DE "Reactive Depression" OR DE "Recurrent Depression" OR DE "Treatment Resistant Depression" OR DE "Anxiety" OR DE "Social Anxiety" OR DE "Anxiety Management" OR DE "Panic" OR DE "Phobias" OR DE "Anxiety Disorders" OR DE "Generalized Anxiety Disorder" OR DE "Obsessive Compulsive Disorder" OR DE "Panic Disorder" OR TI ( anxiety OR phobia\* OR panic OR depression OR depressive ) OR SU ( anxiety OR phobia\* OR panic OR depression OR depressive OR dysthym\* ) OR AB ( anxiety OR phobia\* OR panic OR depression OR depressive )

AND

TI ( "physician-patient relationship" OR "patient-physician relationship" OR "physician-patient relations" OR "patient-physician relations" OR "professional-patient relationship" OR "professional-patient relations" OR access\* ) OR SU ( "physician-patient relationship" OR "patient-physician relationship" OR "physician-patient relations" OR "patient-physician relations" OR "professional-patient relationship" OR "professional-patient relations" OR access\* ) OR AB ( "physician-patient relationship" OR "patient-physician relationship" OR "physician-patient relations" OR "patient-physician relations" OR "professional-patient relationship" OR "professional-patient relations" OR access\*

AND

TI ( randomi\* OR "random allocation" OR rct\* ) OR SU ( randomi\* OR "random allocation" OR rct\* ) OR AB ( randomi\* OR "random allocation" OR rct\* )

=====

**DATABASE SEARCHED & TIME PERIOD COVERED:**

Web of Science – From inception to 6/28/2017

**LANGUAGE:**

English

**SEARCH STRATEGY:**

ts=(telemedicine OR telehealth OR email OR internet OR video OR videos OR skype OR computer-based OR phone-based OR telephone-based OR web-based OR computerized OR smartphone OR avatar OR "information and communication technology" OR ict OR "cell phone" OR "cell phones" OR cellphone\* OR "mobile phone" OR "mobile phones" OR "interactive voice response" OR "text message" OR "text messages" OR "text messaging" OR "digital communication" OR "e-health" OR (virtual AND communicat\*) OR "Information Technology" OR "Automated Information Processing" OR "Bioinformatics" OR "interactive video" OR web-cam\* OR webcam\* OR "remote monitoring" OR "remote monitor" OR "remote monitors" OR "remotely monitor" OR "remotely monitoring" OR "two-way camera" OR "two-way cameras" OR "personal monitor" OR "personal monitors" OR "web-based portal" OR "web-based portals" OR "social network" OR "social networks" OR "social networking" OR chatroom\* OR "chat room" OR "chat rooms" OR online)

AND

ts=(anxiety OR phobia\* OR panic OR depression OR depressive OR dysthym\*)

AND

ts=("physician-patient relationship" OR "patient-physician relationship" OR "physician-patient relations" OR "patient-physician relations" OR "professional-patient relationship" OR "professional-patient relations" OR access\*)

AND

ts=(randomi\* OR "random allocation" OR rct\*)

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**DATABASE SEARCHED & TIME PERIOD COVERED:**

Cochrane CENTRAL – From inception to 6/28/2017

**LANGUAGE:**

English

**SEARCH STRATEGY:**

telemedicine or telehealth or email or internet or video or videos or skype or computer-based or phone-based or telephone-based or web-based or computerized or smartphone or avatar or "information and communication technology" or ict or "cell phone" or "cell phones" or cellphone\* or "mobile phone" or "mobile phones" or "interactive voice response" or "text message" or "text messages" or "text messaging" or "digital communication" or "e-health" or (virtual and communicat\*) or "information technology" or "interactive video" or web-cam\* or webcam\* or "remote monitoring" or "remote monitor" or "remote monitors" or "remotely monitor" or "remotely monitoring" or "two-way camera" or "two-way cameras" or "personal monitor" or "personal monitors" or "web-based portal" or "web-based portals" or "social network" or "social networks" or "social networking" or chatroom\* or "chat room" or "chat rooms" or online:ti,ab,kw (Word variations have been searched) OR MeSH descriptor: [Telemedicine] explode all trees

AND

anxiety or phobia\* or panic or depression or depressive or dysthym\*:ti,ab,kw (Word variations have been searched) OR MeSH descriptor: [Depression] this term only OR MeSH descriptor: [Depressive Disorder] explode all trees OR MeSH descriptor: [Anxiety] this term only OR MeSH descriptor: [Panic] this term only

AND

"physician-patient relationship" or "patient-physician relationship" or "physician-patient relations" or "patient-physician relations" or "professional-patient relationship" or "professional-patient relations" or access\*:ti,ab,kw (Word variations have been searched) OR MeSH descriptor: [Professional-Patient Relations] explode all trees OR MeSH descriptor: [Health Services Accessibility] explode all trees

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**UPDATE SEARCH (for the use of technology in the clinical care of anxiety disorders only):**

**DATABASE SEARCHED AND TIME PERIOD COVERED:**

PubMed, From inception to 2/14/2019

**LANGUAGE:**

English

**SEARCH STRATEGY:**

[replace with Telemedicine [Mesh] OR Telemedicine [tiab] OR tele-medicine [tiab] OR telehealth[ti] OR tele-health[ti] OR telecare[ti] OR teleprogram\*[tiab] OR telepsychiatry\*[ti] OR telebehavio\*[ti] OR telecoaching[ti] OR technology-enhanced therapy[tiab] OR e-health[ti] OR e-therapy[ti] OR e-mental health[ti] OR "remote treatment"[ti] OR "blended therapy"[tiab] OR internet[ti] OR web[ti] OR web-based[tiab] OR web-assist\*[tiab] OR web-deliver\*[tiab] OR online[ti] OR "information technology-based"[ti] OR "information and communication technology"[ti] OR information technolog\*[ti]

OR smartphone[ti] OR "smart phone"[ti] OR (("mobile phone" OR "mobile phones" OR "cell phone" OR "cell phones") AND (assist\* OR deliver\* OR based))[tiab] OR (mobile app\*[tiab] AND assist\*[tiab] OR deliver\*[tiab])  
OR "computer-based"[ti] OR computer-assisted[ti] OR computer-aided[ti] OR computer-delivered[ti] OR "skype"[ti] OR "interactive voice response"[ti] OR text message\*[ti] OR "digital communication"[tiab] OR (virtual AND communicat\*[ti] OR "secure chat"[tiab] OR chatroom\*[ti] OR chat room\*[ti] OR "email-based"[tiab] OR email-assisted[tiab] OR email-aided[tiab] OR email-delivered[ti] OR OR video-conference[ti] OR videoconference\*[ti] OR video-delivered[ti] OR "interactive video" OR web-cam\*[tiab] OR webcam\*[tiab] OR two-way camera\*[tiab]  
OR "cell phone-based"[ti] OR telephone-based[ti] OR telephone-delivered[ti] OR telephone-administered[ti] OR telephone-monitored[ti] OR telephone-facilitat\*[ti] OR telephone monitoring[ti] OR remote-monitor[tiab] OR remote monitor\*[ti] OR personal monitor\*[tiab]  
information technolog\*  
AND  
"Anxiety Disorders"[Mesh] OR OR anxiety OR phobia\* OR panic OR OR agoraphobia  
AND  
randomi\* OR "random allocation" OR rct\* OR Filters: Randomized Controlled Trial

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**DATABASE SEARCHED AND TIME PERIOD COVERED:**

PsycINFO, From inception to 2/14/2019

**LANGUAGE:**

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TI, SU, AB ( telemedicine OR telehealth OR email OR internet OR video OR videos OR skype OR computer-based OR phone-based OR telephone-based OR web-based OR computerized OR smartphone OR avatar OR "information and communication technology" OR ict OR "cell phone" OR "cell phones" OR cellphone\* OR "mobile phone" OR "mobile phones" OR "interactive voice response" OR "text message" OR "text messages" OR "text messaging" OR "digital communication" OR "e-health" OR (virtual AND communicat\* ) OR DE "Information Technology" OR DE "Automated Information Processing" OR DE "Bioinformatics" OR TI, SU, AB ( "interactive video" OR web-cam\* OR webcam\* OR "remote monitoring" OR "remote monitor" OR "remote monitors" OR "remotely monitor" OR "remotely monitoring" OR "two-way camera" OR "two-way cameras" OR "personal monitor" OR "personal monitors" OR "web-based portal" OR "web-based portals" OR "social network" OR "social networks" OR "social networking" OR chatroom\* OR "chat room" OR "chat rooms" OR online )  
AND  
DE "Anxiety" OR DE "Social Anxiety" OR DE "Anxiety Management" OR DE "Panic" OR DE "Phobias" OR DE "Anxiety Disorders" OR DE "Generalized Anxiety Disorder" OR DE "Panic Disorder" OR TI ( anxiety OR phobia\* OR panic OR SU ( anxiety OR phobia\* OR panic OR OR AB ( anxiety OR phobia\* OR panic)  
AND  
TI ( randomi\* OR "random allocation" OR rct\* ) OR SU ( randomi\* OR "random allocation" OR rct\* ) OR AB ( randomi\* OR "random allocation" OR rct\* )

=====

**DATABASE SEARCHED AND TIME PERIOD COVERED:**

Web of Science, From 6/28/2017 to 2/14/2019

**LANGUAGE:**

English

**SEARCH STRATEGY:**

ts=(telemedicine OR telehealth OR email OR internet OR video OR videos OR skype OR computer-based OR phone-based OR telephone-based OR web-based OR computerized OR smartphone OR avatar OR "information and communication technology" OR ict OR "cell phone" OR "cell phones" OR cellphone\* OR "mobile phone" OR "mobile phones" OR "interactive voice response" OR "text message" OR "text messages" OR "text messaging" OR "digital communication" OR "e-health" OR (virtual AND communicat\*) OR "Information Technology" OR "Automated Information Processing" OR "Bioinformatics" OR "interactive video" OR web-cam\* OR webcam\* OR "remote monitoring" OR "remote monitor" OR "remote monitors" OR "remotely monitor" OR "remotely monitoring" OR "two-way camera" OR "two-way cameras" OR "personal monitor" OR "personal monitors" OR "web-based portal" OR "web-based portals" OR "social network" OR "social networks" OR "social networking" OR chatroom\* OR "chat room" OR "chat rooms" OR online)

AND

ts=(anxiety OR phobia\* OR panic OR)

AND

ts=(randomi\* OR "random allocation" OR rct\*)

=====

**DATABASE SEARCHED AND TIME PERIOD COVERED:**

Cochrane CENTRAL, From 6/28/2017 to 2/14/2019

**LANGUAGE:**

English

**SEARCH STRATEGY:**

telemedicine or telehealth or email or internet or video or videos or skype or computer-based or phone-based or telephone-based or web-based or computerized or smartphone or avatar or "information and communication technology" or ict or "cell phone" or "cell phones" or cellphone\* or "mobile phone" or "mobile phones" or "interactive voice response" or "text message" or "text messages" or "text messaging" or "digital communication" or "e-health" or (virtual and communicat\*) or "information technology" or "interactive video" or web-cam\* or webcam\* or "remote monitoring" or "remote monitor" or "remote monitors" or "remotely monitor" or "remotely monitoring" or "two-way camera" or "two-way cameras" or "personal monitor" or "personal monitors" or "web-based portal" or "web-based portals" or "social network" or "social networks" or "social networking" or chatroom\* or "chat room" or "chat rooms" or online:ti,ab,kw (Word variations have been searched) OR MeSH descriptor: [Telemedicine] explode all trees

AND

Anxiety[ti] or phobia\*[ti] or panic[ti]

AND

TI ( randomi\* OR "random allocation" OR rct\* ) OR SU ( randomi\* OR "random allocation" OR rct\* )  
OR AB ( randomi\* OR "random allocation" OR rct\* )

=====  
ClinicalTrials.gov, From inception to 2/20/2019

**SEARCH STRATEGY:**

**CONDITION/DISEASE:** anxiety OR panic OR phobi\* OR agoraphobia

**INTERVENTION/TREATMENT:** Telemedicine OR Telemedicine OR tele-medicine OR telehealth  
OR tele-health OR telecare OR teleprogram\* OR telepsychiatry\* OR telebehavio\* OR telecoaching OR  
technology-enhanced therapy OR e-health OR e-therapy OR e-mental health OR “remote treatment” OR  
“blended therapy” OR internet OR web OR web-based OR web-assist\* OR web-deliver\* OR online OR  
“information technology-based” OR “information and communication technology” OR information  
technolog\* OR smartphone OR “smart phone” OR (“mobile phone” OR “mobile phones” OR “cell  
phone” OR “cell phones”) AND (assist\* OR deliver\* OR based)) OR (mobile app\* AND assist\* OR  
deliver\*) OR “computer-based” OR computer-assisted OR computer-aided OR computer-delivered OR  
“skype” OR "interactive voice response" OR text message\* OR "digital communication" OR (virtual  
AND communicat\*) OR "secure chat" OR chatroom\* OR chat room\* OR “email-based” OR email-  
assisted OR email-aided OR email-delivered OR video-conference OR videoconference\* OR video-  
delivered OR "interactive video" OR web-cam\* OR webcam\* OR two-way camera\* OR “cell phone-  
based” OR telephone-based OR telephone-delivered OR telephone-administered OR telephone-monitored  
OR telephone-facilitat\* OR telephone monitoring OR remote-monitor OR remote monitor\* OR personal  
monitor\*

**FILTERED BY “INTERVENTIONAL STUDIES”:**

Check under ‘status:recruitment’ – completed

## **Inclusion/exclusion eligibility criteria**

Study inclusion and exclusion criteria are summarized in the following “PICOTSS” framework (participants, interventions, comparators, outcomes, timing, settings, and study design):

- **Participants:**

Studies of male and female participants, 18 years of age or older, were eligible for inclusion.

Participants could have any type of anxiety symptoms, diagnosis, or disorders, including generalized anxiety disorder, panic disorder, phobia, or other specified or unspecified anxiety disorders. Participants with anxiety due to a substance/ medication or medical condition were excluded.

Participants with other diagnoses such as obsessive-compulsive disorder or posttraumatic stress disorder were not classified as anxiety disorders according to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) and were excluded. Studies exclusively reporting on participants with self-limited, situational anxiety were excluded. Studies that did not include a majority of patients with anxiety disorders were excluded. Studies that involved a population of patients with a particular medical diagnosis or situation (such as caregivers), in which the intervention addressed primarily the medical or situational needs and secondarily anxiety symptoms, were excluded.

- **Interventions:**

Studies evaluating technology to directly treat anxiety, or in the clinical care in anxiety disorders were eligible. Interventions focused on collaborative care, such as between a primary care provider and a psychiatrist, were excluded. Interventions designed to treat or manage another condition, where the effects of the intervention on anxiety were secondary, were excluded. We included phone, smartphone, video, or computer-based technology for clinical care but technological treatment such as biofeedback, transcranial magnetic stimulation, or electroconvulsive therapy offered in a healthcare setting was excluded. The interventions could



be delivered in addition to non-pharmacologic or medication-based care.

- Comparators:

Studies that compare to anxiety disorder treatment, with or without the use of technology, wait-list control, or no-treatment were eligible.

- Outcomes:

Studies reporting symptom improvement, response to treatment, and remission of anxiety were eligible.

- Timing:

Studies could involve any treatment duration and any follow-up period.

- Setting:

Studies were not limited by setting.

- Study Design:

Studies that did not randomize to intervention vs comparator were excluded. Studies using any form of randomization (e.g., parallel and cross-over) were acceptable and included.

- Only studies published in English were eligible for inclusion in this evidence map.

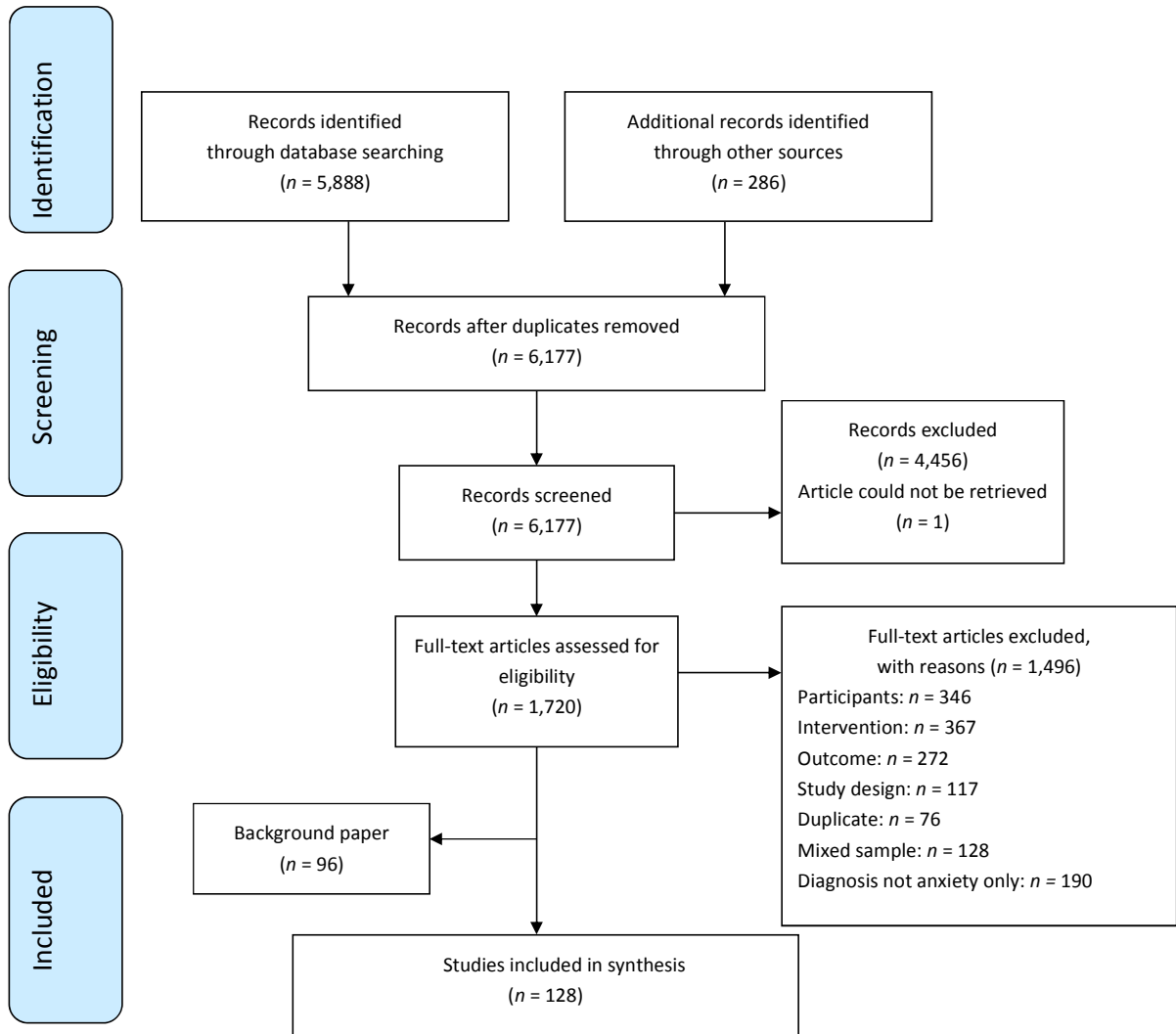
## List of abstracted variables

We abstracted the following data:

- Study size: Number of randomized participants (if this was not available, the number of participants analyzed); number of participants in the technology intervention group
- Type of technology: Categories of the type of technology used in supporting clinical care, according to the type of technology most likely chosen by the participant, based on the lowest level of technology most likely to fully implement the intervention: phone only, computer only (online treatment, email communication with providers), smartphone only (app or texting), videoconferencing (interaction with provider, needs camera), multiple technology (explicitly using more than one technology, not for studies where patients have the choice between using a normal phone or a smart phone), other (technology could not be classified into the preceding categories).
- Function of technology: Categories of the function of the technology in clinical care: automated reminders (fully automated), provider-sent reminders (requires interaction with provider, provider-initiated), patients' self-directed support (online resources for patients, peer support), provider support (e.g., provider-run support group), self-directed psychotherapy (e.g., online modules), provider-directed psychotherapy (virtual interaction with provider, e.g., interaction by phone or online), automated feedback (e.g., after task completion; patient has instructions to record task and to watch it back with specific instruction), provider feedback (e.g., provider watches recorded video from patient and gives feedback), multiple functions, (function could not be classified into the preceding categories).
- Effectiveness signal: Category of directionality of effectiveness measure (i.e., are the symptoms of anxiety improved relative to no technology?): negative (i.e. intervention group outcomes are worse than the control group or baseline outcomes); unclear (effect unclear, no change, or not

applicable because two active technologies were compared); positive (i.e., intervention group outcomes are better than control group or baseline outcomes). The category is based on results as reported by the original study authors and will be based on the outcomes most relevant to the diagnosis in the respective study (e.g., anxiety symptoms in patients treated for anxiety), compared to no use of technology.

## PRISMA literature flow diagram



## Evidence Table

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Allen, 2016(1)	67	Waitlist	Computer	Multiple: Self-directed psychotherapy with email therapist support	Positive
Amir, 2006(2)	48	Control: Attention Disengagement Training	Computer	Self-therapy	Unclear
Amir, 2019(3) NCT00602563(4)	169	TAU; Alternative: Applied relaxation + psychoeducation followed by ABM; Alternative: Applied relaxation + psychoeducation + ABM (simultaneous)	Computer	Multiple: ABM followed by applied relaxation + psychoeducation	Positive
Andersson, 2006(5)	64	Waitlist	Computer	Multiple: Self-directed psychotherapy with discussion forum and email contact with therapist	Positive
Andersson, 2009(6)	30	Other: One-session in-person exposure	Multiple: Computer and videotape	Exposure	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Andersson, 2012(7)	81	Waitlist; Alternative: Internet-based CBT	Computer	Provider-directed psychotherapy	Positive
Andersson, 2012(8)	204	Alternative: Online discussion forum	Computer	Self-therapy	Positive
Andersson, 2013(9)	26	Other: One-time in-person exposure treatment with therapists	Multiple: Computer and video	Exposure	Positive
Andrews, 2011(10)	37	Other: Face-to-face CBT	Computer	Multiple: Self-directed psychotherapy, forum moderated by clinician, automatic emails and text messages	Positive
Ashford, 2018(11) Ashford2017(12) NCT02434406(13)	89	Waitlist	Computer	Self-therapy	Positive
Bautista, 2018(14)	35	Waitlist	Computer	Self-therapy	Positive
Beard, 2008(15)	27	Alternative: Interpretation control condition	Computer	Exposure	Positive
Beard, 2011(16)	32	Control: Placebo ABM	Computer	Self-therapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Berger, 2009(17)	52	Waitlist	Computer	Multiple: Self-directed psychotherapy with text based therapist support; online group	Positive (within groups effects not reported / unclear)
Berger, 2010(18)	132	Waitlist; Alternative: Standardized disorder-specific treatment	Computer	Multiple: Self-directed psychotherapy; online discussion forum; scheduled email contact with therapist	Positive
Berger, 2011(19)	81	Alternative: Guided self-help; Alternative: Step up of support on demand	Computer	Self-therapy	Positive
Berger, 2016(20)	139	TAU	Computer	Self-therapy	Positive
Berghoff, 2018(21)	120	Control: Movie genre preferences (control task)	Computer	Other: Self-directed education	No change
Bergstrom, 2010(22)	113	Other: Psychologist-led group therapy	Computer	Multiple: Self-directed psychotherapy with email therapist support	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Bickel, 2008(23)	22	Waitlist	Computer	Self-therapy	Positive
Boettcher, 2012(24)	68	Control: Control dot-probe task	Computer	Self-therapy	Positive
Boettcher, 2013(25)	129	Control: Control condition words; Control: Control condition words + faces; Alternative: 'Attend to threat' words + face; Alternative: 'Attend to positive' words; Alternative: 'Attend to positive' words + faces	Computer	Self-therapy	Positive
Boettcher, 2014(26)	133	Control: Sham applied attention training + iCBT	Computer	Self-therapy	Positive
Boettcher, 2014(27)	91	Alternative: Online discussion forum	Computer	Self-therapy	Positive
Boettcher, 2018(28)	209	Waitlist	Multiple: Computer and smartphone	Self-therapy	Positive
Bornas, 2006(29)	41	Other: Multi-component nonexposure	Computer	Exposure	Positive



Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Botella, 2010(30)	127	Waitlist; Other: face-to-face treatment	Computer	Self-therapy	Positive
Bouchard, 2004(31)	21	Waitlist	Videoconference	Provider-directed psychotherapy	Positive
Brenes, 2012(32)	60	Other: Education/information	Phone	Provider-directed psychotherapy	Positive
Brenes, 2015(33) Brenes, 2017(34)	141	Alternative: Non-directive supportive therapy	Phone	Provider-directed psychotherapy	Positive
Butler, 2015(35)	40	Alternative: Neutral cognitive bias modification for interpretative biases (active control)	Computer	Self-therapy	Positive
Campos, 2018(36)	46	Alternative: Provider-directed therapy	Computer	Self-therapy	Unclear
Carlbring, 2003(37)	22	Alternative: Applied relaxation	Computer	Multiple: Self-directed psychotherapy but email feedback to progress in therapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Carlbring, 2005(38)	49	Other: In-person psychotherapy	Computer	Multiple: Self-directed psychotherapy with therapist feedback and support	Positive
Carlbring, 2006(39)	60	Waitlist	Multiple Phone and computer	Multiple: Self-directed psychotherapy with email therapist support, weekly calls, and online discussion group	Positive
Carlbring, 2007(40)	60	Waitlist	Multiple: Phone and computer	Multiple: Self-directed psychotherapy with weekly therapist phone calls	Positive
Carlbring, 2008(41)	41	Waitlist	Computer	Self-therapy	Positive
Carlbring, 2011(42)	54	Alternative: Online support group	Computer	Multiple: Self-directed psychotherapy with email therapist support	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Carlbring, 2012(43)	79	Control: Placebo ABM	Multiple: Smartphone and Computer	Multiple: Self-directed psychotherapy with email and text message reminders	No change
Carleton, 2016(44)	113	Control: Online Attention Control Condition	Computer	Multiple: Self-directed psychotherapy with email/call reminders	Positive
Chen, 2015(45)	41	Control: Control video feedback without cognitive; Alternative: Audience feedback + video; Other: Audience feedback; feedback preparation	VCR	Auto-feedback	Unclear
Chen, 2018(46)	151	Alternative: Video feedback + cognitive review; Alternative: Video feedback + cognitive review + audience feedback	VCR	Auto-feedback	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Choi 2005,(47)	40	Other: Panic Control Program: Psychoeducation + Breathing retraining and muscle relaxation training + Cognitive restructuring + Interoceptive exposure + In vivo exposure	VR NR	Exposure	Positive
Christoforou, 2017(48)	170	Alternative: Stress Free generic CBT app	Smartphone	Self-therapy	Positive
Ciuca, 2018(49)	111	Waitlist	Computer	Multiple: Provider-directed psychotherapy and self-directed psychotherapy	Positive
Dagoo, 2014(50)	52	Alternative: mobile CBT	Multiple: Smartphone and computer	Multiple: Self-directed psychotherapy with therapist support	Positive
Dahlin, 2016(51)	103	Waitlist	Computer	Multiple: Self-guided psychotherapy with online therapist support	Positive

			Technology		
Study	N	Comparator	Type	Function	Effectiveness Signal
Dear, 2015(52)	72	Waitlist	Computer	Multiple: Self-directed psychotherapy with online therapist support	Positive
Edwards, 2018(53)	379	Alternative: Mixed positive/negative CBM + neutral imagery prime; Alternative: Mixed positive/negative CBM + anxious imagery prime; Alternative: Neutral CBM + neutral imagery prime; Alternative: Neutral CBM + anxious imagery prime	Computer	Self-therapy	Unclear
Enock, 2014(54)	429	Alternative: Control program on smartphone	Smartphone	Self-therapy	Positive
Freeman, 2018(55)	100	TAU	Multiple: Computer and VR head mounted display	Exposure	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Furmark, 2009(56)	120	Waitlist; Other: Bibliotherapy	Computer	Multiple: Self-directed psychotherapy with available online therapist	Positive
Gallego, 2011(57)	41	Waitlist	Computer	Multiple: Self-directed psychotherapy with therapist reminder after 7 days of not participating	Positive
Gershkovich, 2017(58)	42	Alternative: Self-therapy + provider support	Multiple: Computer; Computer + videoconference/text messages	Self-therapy	Positive
Gorini, 2010(59)	21	Waitlist; Alternative: VR without biofeedback	Smartphone	Multiple VR(exposure and relaxation) with biofeedback	Positive
Gotestam, 2002(60)	38	Other: Direct exposure (live spider); Other: Model exposure (group observed other patients being exposed to spider)	VCR	Exposure	Positive
Gross, 2018(61)	100	Other: Unclear	Smartphone	Provider support	No change

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Haddadi, 2018(62)	30	Alternative: Neutral ABM	Computer	Self-therapy	Unclear
Hazen, 2009(63)	24	Control: Sham attentional retraining for threat stimuli	Computer	Self-therapy	Positive
Hedman, 2011(64)	81	Alternative: Online discussion forum	Computer	Multiple: Self-directed psychotherapy with online therapist support	Positive
Hedman, 2014(65) Hedman, 2011(66)	126	Other: Group-based CBT	Computer	Provider-directed psychotherapy	Positive
Hedman, 2014(67) Hedman, 2016(68) Hedman 2017(69)	158	Alternative: Internet behavioral stress management	Computer	Provider-directed psychotherapy	Positive
Hedman, 2016(70) Axelsson, 2016(71)	132	Waitlist; Other: Bibliotherapy; Alternative: Unguided iCBT	Computer	Provider-directed psychotherapy	Positive
Ivanova, 2016(72)	152	Waitlist; Alternative: Smartphone supplemented iCBT without therapist support	Multiple computer and smartphone	Multiple: Self-directed psychotherapy with smartphone app and therapist support	Unclear
Johansson, 2017(73) NCT02105259(74)	72	Waitlist	Computer	Self-therapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Jones, 2016(75)	46	Waitlist	Computer	Multiple: Self-guided psychotherapy with therapist support	Positive
Kahlke, 2019(76)	200	Waitlist	Computer	Multiple: Self-directed psychotherapy + auto-reminders	Unclear
Kanai, 2011(77)	25	Control: Watched video of another's speech (active control)	VCR	Other: Peer feedback	Positive
Kenardy, 2003(78)	163	Waitlist; Other: 6 or 12 sessions of provider-directed CBT	Computer	Self-therapy	Positive
Kiropoulos, 2008(79)	86	Other: Face-to-face psychotherapy	Computer	Multiple	Positive
Klein, 2001(80)	22	Other: Self-monitoring	Computer	Self-support	Positive
Klein, 2006(81)	55	Alternative: Workbook plus phone support; Other: Information only	Computer	Provider-directed psychotherapy	Positive



Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Klein, 2009(82)	57	Alternative: Same but with less therapist contact	Computer	Multiple	Positive
Kok, 2014(83)	212	Waitlist	Computer	Multiple	Positive
LaFreniere, 2016(84)	52	Control: Thought log	Smartphone	Auto-reminders	Positive
Lee, 2015(85)	50	Control: Control program on computer	Computer	Self-therapy	Positive
Lorian, 2012(86)	48	Waitlist	Computer	Self-therapy	Positive
Mall, 2011(87)	24	Waitlist	Multiple computer, DVD player, printer	Multiple: Self-directed psychotherapy with email therapist support	Positive
Maples-Keller, 2017(88)	89	Alternative: Neutral cue VRE	VR VRE glasses	Exposure	Positive
Marks, 2004(89)	93	Alternative: Self-guided relaxation by computer, and face-to-face therapy	Computer	Exposure	Positive
Mathiasen, 2016(90)	67	Waitlist	Computer	Multiple: Self-directed psychotherapy with therapist assistance	No change (within group effectiveness not reported)

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Matthews, 2015(91)	37	Waitlist; Alternative: Real spider images	Computer	Exposure	Positive
McCall, 2018(92)	101	Waitlist	Computer	Self-therapy	Positive
Meuret, 2017(93)	60	Alternative	VCR	Exposure	Unclear
Minns, 2019(94)	77	Waitlist: Waitlist + psychoeducational control	VR computer and VR headset	Exposure	Positive
Muller, 2011(95)	36	Alternative: Computer showing neutral pictures	Computer	Exposure	Positive
Neubauer, 2013(96)	59	Alternative: Computerized program, not therapeutic	Computer	Self-therapy	Positive
Nilsson, 2016(97)	41	Alternative: Listened to self on audiotape but not instructed to reduce self focus	Other: audiotape	Exposure	Positive
Nordgren, 2014(98)	100	Control: Check-in with online therapist, no therapy (attention control)	Computer	Provider-directed psychotherapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Nowakowski, 2015(99)	72	Control: Positive and negative computer scenarios; Alternative: Cognitive restructuring computer task	Computer	Self-therapy	No change
Orbach, 2007(100)	90	Alternative: Non-psychotherapeutic information via computer	Computer	Self-therapy	Positive
Oromendia, 2016(101) NCT02105259(102)	77	Waitlist; Alternative: Online self-therapy + scheduled provider support	Computer	Self-therapy	Positive
Orr, 2010(103) Orr, 2014(104)	68	Alternative: Video feedback without cognitive review; Other: Speech exposure without video,	VCR	Provider feedback	Positive
Pallavicini, 2009(105)	13	Waitlist; Alternative: Biofeedback + self-therapy via virtual reality and smartphone	Multiple computer and smartphone	Self-therapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Paxling, 2011(106)	89	Waitlist	Computer	Provider-directed psychotherapy	Positive
Pham, 2016(107)	63	Waitlist	Smartphone	Other: Self-directed breathing retraining games	Positive
Richards, 2016(108)	137	Waitlist	Computer	Multiple: Self-directed psychotherapy with psychologist feedback	Positive
Robillard, 2010(109)	45	Waitlist; Other: In-person CBT	VR	Exposure	Positive
Robinson, 2010(110)	150	Waitlist; Alternative: Online CBT with clinician assistance	Computer	Multiple: Self-directed psychotherapy with weekly emails with technician	Positive
Rollman, 2017(111) Rollman, 2016(112)	250	TAU	Phone	Provider support	Positive
Rosmarin, 2010(113)	261	Waitlist; Alternative: Progressive muscle relaxation	Computer	Self-therapy	Positive
Runwaard, 2010(114)	58	Waitlist	Computer	Provider-directed psychotherapy	Positive

			Technology		
Study	N	Comparator	Type	Function	Effectiveness Signal
Saul, 2006(115)	51	Waitlist; Other: Face-to-face provider-therapy	Computer	Provider-directed psychotherapy	Positive
Schneider, 2005(116)	68	Alternative	Computer	Multiple: Phone or email contact with therapist and self- directed psychotherapy	Positive
Schroder, 2017(117)	180	Waitlist	Multiple computer and optional text messagin by smartphone	Multiple: Self- directed psychotherapy with optional texts with therapist	Positive
Schulz, 2016(118)	149	Waitlist; Alternative: Clinician-guided individual treatment	Computer	Multiple: Self- directed psychotherapy with clinician-guided discussion forum	Positive
Silfvernagel, 2012(119)	57	Waitlist	Computer	Provider-directed psychotherapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Smits, 2006(120)	77	Control: Sham anxiety-treating technology; Alternative: Exposure with videotape feedback of audience; Alternative: Exposure only	Video	Auto-feedback	Positive
Stetz, 2011(121)	60	No treatment	Other: video in movie theater setting	Other: Relaxation exercises	Positive
Stolz, 2018(122)	150	Waitlist	Multiple Computer or smartphone	Self-therapy	Positive
Swinson, 1995(123)	42	Waitlist	Phone	Provider-directed psychotherapy	Positive
Tardif, 2019(124)	59	Alternative	VR	Exposure	Positive
Tillfors, 2008(125)	38	Alternative: iCBT alone	Computer	Self-therapy	Positive
Titov, 2008(126)	105	Waitlist	Computer	Multiple	Positive
Titov, 2008(127)	88	Waitlist	Computer	Multiple	Positive
Titov, 2008(128)	98	Waitlist; Alternative: Self-guided online CBT	Computer	Provider-directed psychotherapy	Positive
Titov, 2009(129)	48	Waitlist	Computer	Provider-directed psychotherapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Titov, 2010(130)	113	Alternative: iCBT + motivational enhancement strategies	Computer	Self-therapy	Positive
Titov, 2010(131)	86	Waitlist	Computer	Multiple	Positive
Tortella-Feliu, 2011(132)	60	TAU; Alternative: Computer-aided exposure with therapist	Computer	Exposure	Positive
Tulbure, 2015(133)	76	Waitlist	Computer	Self-therapy	Positive
Turkel, 2017(134)	66	Control: Control attention training + exposure; Alternative: Attention training towards threat training + exposure	Computer	Multiple: ABM + exposure	Positive
van Ballegooijen, 2013(135)	126	Waitlist	Computer	Self-therapy	No change
Vincelli, 2003(136)	12	Waitlist; Other: In-person CBT	Other: computer, head-mounted display and a joystick	Exposure	Positive
Weiss, 2014(137)	20	Waitlist	Videoconference	Provider-directed psychotherapy	Positive

Study	N	Comparator	Technology		Effectiveness Signal
			Type	Function	
Wims, 2010(138)	59	Waitlist	Computer	Provider-directed psychotherapy	Positive
Wolitzky-Taylor, 2010(139)	113	Waitlist; Alternative: Expressive writing and audiophotic stimulation	Other: audiotape	Exposure	Positive
Yang, 2017(140)	76	Control: Control CBM; Alternative: CBM-Interpretation; Alternative: CBM- Attention + CBM- Interpretation	Smartphone	Self-therapy	No change

Notes: Abbreviations: ABM: attention bias modification; CBM: cognitive-bias modification; CBT: cognitive- behavioral therapy; iCBT: Internet cognitive-behavioral therapy; TAU: treatment as usual



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