E-Health

1-A systematic review of gamification in e-Health

By Sardi, L (Sardi, Lamyae) [1] ; Idri, A (Idri, Ali) [1] ; Fernández-Alemán, JL (Luis Fernandez-Aleman, Jose) [2] (provided by Clarivate) **Source JOURNAL OF BIOMEDICAL INFORMATICS Volume 71 Page 31-48 DOI 10.1016/j.jbi.2017.05.011 Published JUL 2017 Indexed 2017-07-01 Document Type Review**

Abstract

Gamification is a relatively new trend that focuses on applying game mechanics to non-game contexts in order to engage audiences and to inject a little fun into mundane activities besides generating motivational and cognitive benefits. While many fields such as Business, Marketing and e-Learning have taken advantage of the potential of gamification, the digital healthcare domain has also started to exploit this emerging trend. This paper aims to summarize the current knowledge regarding gamified e-Health applications. A systematic literature review was therefore conducted to explore the various gamification strategies employed in e-Health and to address the benefits and the pitfalls of this emerging discipline. A total of 46 studies from multiple sources were then considered and thoroughly investigated. The results show that the majority of the papers selected reported gamification and serious gaming in health and wellness contexts related specifically to chronic disease rehabilitation, physical activity and mental health. Although gamification in e-Health has attracted a great deal of attention during the last few years, there is still a dearth of valid empirical evidence in this field. Moreover, most of the e-Health applications and serious games investigated have been proven to yield solely short-term engagement through extrinsic rewards. For gamification to reach its full potential, it is therefore necessary to build e-Health solutions on well-founded theories that exploit the core experience and psychological effects of game mechanics.

Keywords

Author Keywords

Gamificatione-HealthApplicationSerious gameSystematic literature review

Keywords Plus

GAMEDISEASEEDUCATIONEXERCISEHOME

E-Health

2-Blockchain for Secure EHRs Sharing of Mobile Cloud Based E-Health Systems

By Nguyen, DC (Nguyen, Dinh C.) [1] ; Pathirana, PN (Pathirana, Pubudu N.) [1] ; Ding, M (Ding, Ming) [2] ; Seneviratne, A (Seneviratne, Aruna) [3] (provided by Clarivate) **Source IEEE ACCESS Volume 7 Page 66792-66806 DOI 10.1109/ACCESS.2019.2917555 Published 2019 Indexed 2019-06-26 Document Type Article**

Abstract

Recent years have witnessed a paradigm shift in the storage of Electronic Health Records (EHRs) on mobile cloud environments, where mobile devices are integrated with cloud computing to facilitate medical data exchanges among patients and healthcare providers. This advanced model enables healthcare services with low operational cost, high flexibility, and EHRs availability. However, this new paradigm also raises concerns about data privacy and network security for e-health systems. How to reliably share EHRs among mobile users while guaranteeing high-security levels in the mobile cloud is a challenging issue. In this paper, we propose a novel EHRs sharing framework that combines blockchain and the decentralized interplanetary file system (IPFS) on a mobile cloud platform. Particularly, we design a trustworthy access control mechanism using smart contracts to achieve secure EHRs sharing among different patients and medical providers. We present a prototype implementation using Ethereum blockchain in a real data sharing scenario on a mobile app with Amazon cloud computing. The empirical results show that our proposal provides an effective solution for reliable data exchanges on mobile clouds while preserving sensitive health information against potential threats. The system evaluation and security analysis also demonstrate the performance improvements in lightweight access control design, minimum network latency with high security and data privacy levels, compared to the existing data sharing models.

Keywords
Author Keywords
Electronic health records (EHRs)EHRs sharingmobile cloud computing (MCC)Internet of Medical Things (IoMT)blockchainsmart contractsaccess controlprivacysecurity

Keywords Plus
CARE

E-Health

3-E-health and wellbeing monitoring using smart healthcare devices: An empirical investigation

By Papa, A (Papa, Armando) [1] ; Mital, M (Mital, Monika) [2] ; Pisano, P (Pisano, Paola) [1] ; Del Giudice, M (Del Giudice, Manlio) [3] , [4] (provided by Clarivate) **Source TECHNOLOGICAL FORECASTING AND SOCIAL CHANGE Volume 153 DOI 10.1016/j.techfore.2018.02.018 Article Number 119226 Published APR 2020 Indexed 2020-05-01 Document Type Article**

Abstract

According to the United Nations Sustainable Development Goal No. 3 (SDG - Goal 3), for sustainable development it is imperative to ensure health and well-being across all ages, and is achievable only through effective and continuous healthcare monitoring. But in India and other third world countries, healthcare monitoring is poor compared to other countries in the world, in spite of it being affordable. The global healthcare smart wearable healthcare (SWH) devices market is expected to rise up at a CAGR (Compound Annual Growth Rate) of 5.6% and by 2020 it is expected to reach 25 Billion (GVR Report, 2016). The growing incidences of lifestyle diseases, sedentary lifestyle, busy work schedules, technological advancements in healthcare monitoring devices, and increased usage of remote devices-seems to be some of the important factors fuelling this growth. Some of the major players in this segment are Abbott Laboratories, Philips Healthcare, Life Watch, GE Healthcare, Omron Healthcare, Siemens Healthcare and Honeywell International Inc. etc. But in spite of the healthcare monitoring devices are being predicted to be technologically innovative and providing advanced as well as basic health care monitoring features and available in various price ranges based on the features, we wanted to empirically study the attitude towards adoption of such devices in India. India has traditionally been having a very lackadaisical attitude towards healthcare monitoring. In such a context, what would be the factors influencing the adoption of SWH devices. Remote health monitoring can enhance the nature of wellbeing administration and to lessen the aggregate expense in human services by maintaining a strategic distance from pointless hospitalizations and guaranteeing that the individuals who need critical consideration get it sooner. This empirical investigation would provide a detailed insight as to how these wearable Internet Of Things devices would bring about a revolution in the healthcare industry. It would also provide the future prospect of IOT devices in this sector and how the probability of increase in its usage can be increased with time. The paper explores intrusiveness (INTR), Comfort (C), perceived usefulness (PU) and perceived ease of use (EOU) of SWH devices. The study hypothesized the Impact of PU and EOU, INTR and C on attitude and intention to use towards adoption of SWH devices. Partial Least Square Structured Equation Modeling (PLS - SEM) methodology was applied to explore the relationships between the concepts and hypothesis. The data was collected from 273 respondents. The age group of the respondents was between 25 and 40 years. The results indicated that intrusiveness and comfort do not have a significant direct impact on Intention to use BI (Behavior Intention) BI SWH devices. At the same time Intrusiveness had a significant impact on PU of SWH devices and Comfort has a strong significant impact on PU and EOU of smart wearables. The research has strong implications in the current emerging context of smart wearables, their design and effectiveness. Also the research can have lasting implications on elderly health and well-being. There are very few empirical studies in the area of SWH devices. Most of the studies till now are conceptual studies or providing technology architectures and frameworks. The research in this

area is still at a very nascent stage and very few studies have been done to explore the use and adoption of SWH devices.

Keywords
Author Keywords
Internet of thingsSmart healthcareSmart citiesRFIDHealthcare computingHealthcare systemsInnovation management

Keywords Plus
KNOWLEDGE MANAGEMENT-SYSTEMSUSER ACCEPTANCEINFORMATION-TECHNOLOGYPERCEIVED USEFULNESSPLANNED BEHAVIORBIG DATAINNOVATIONINTERNETCOMMUNITYPERFORMANCE

E-Health

4-Time-Controllable Keyword Search Scheme With Efficient Revocation in Mobile E-Health Cloud

By Miao, YB (Miao, Yinbin) [1] , [2] ; Li, F (Li, Feng) [2] ; Li, XH (Li, Xinghua) [3] ; Liu, ZQ (Liu, Zhiquan) [4] , [5] ; Ning, JT (Ning, Jianting) [6] ; Li, HW (Li, Hongwei) [7] ; Choo, KKR (Choo, Kim-Kwang Raymond) [8] ; Deng, RH (Deng, Robert H.) [9] **(provided by Clarivate) Source IEEE TRANSACTIONS ON MOBILE COMPUTING Volume 23 Issue 5 Page 3650-3665 DOI 10.1109/TMC.2023.3277702 Published MAY 2024 Indexed 2024-08-02 Document Type Article**

Abstract

Electronic health (e-health) systems may outsource data such as patient e-health records to mobile cloud servers for efficiency gains (e.g., minimizing local storage and computation costs). However, such a move may result in privacy implications in the presence of semi-honest cloud servers. Searchable Encryption (SE) can potentially facilitate privacy-preserving searches based on keywords for encrypted data stored in the mobile cloud, but most existing SE solutions do not support temporal access control (i.e., a mechanism that grants access permissions to users for specified time ranges). Hence, in this paper we design a time-controllable keyword search scheme by using an attribute-based comparable access control. This allows users to match indexes encrypted at specified time intervals. Then, we improve the basic framework to support efficient user revocation using secret sharing. We then formally prove the security of our proposed frameworks against chosen-keyword attack and key collusion attack, as well as achieving keyword secrecy. We also evaluate the performance of our proposed approach using a real-world dataset to demonstrate their practical utility.

Keywords

Author Keywords

Keyword searchIndexesCryptographyServersEncryptionPublic keyAccess controlChosen-keyword attackcomparable access controle-health systemsearchable encryptionuser revocation

Keywords Plus

PUBLIC-KEY ENCRYPTIONIDENTITY-BASED ENCRYPTIONATTRIBUTE-BASED ENCRYPTIONPRIVACY

E-Health

5-Towards Secure and Privacy-Preserving Data Sharing in e-Health Systems via Consortium Blockchain

By Zhang, AQ (Zhang, Aiqing) [1] ; Lin, XD (Lin, Xiaodong) [2] Source JOURNAL OF MEDICAL SYSTEMS Volume 42 Issue 8 DOI 10.1007/s10916-018-0995-5 Article Number 140 Published AUG 2018 Indexed 2018-12-28 Document Type Article

Abstract

Electronic health record sharing can help to improve the accuracy of diagnosis, where security and privacy preservation are critical issues in the systems. In recent years, blockchain has been proposed to be a promising solution to achieve personal health information (PHI) sharing with security and privacy preservation due to its advantages of immutability. This work proposes a blockchain-based secure and privacy-preserving PHI sharing (BSPP) scheme for diagnosis improvements in e-Health systems. Firstly, two kinds of blockchains, private blockchain and consortium blockchain, are constructed by devising their data structures, and consensus mechanisms. The private blockchain is responsible for storing the PHI while the consortium blockchain keeps records of the secure indexes of the PHI. In order to achieve data security, access control, privacy preservation and secure search, all the data including the PHI, keywords and the patients' identity are public key encrypted with keyword search. Furthermore, the block generators are required to provide proof of conformance for adding new blocks to the blockchains, which guarantees the system availability. Security analysis demonstrates that the proposed protocol can meet with the security goals. Furthermor, we implement the proposed scheme on JUICE to evaluate the performance.

Keywords
Author Keywords
BlockchainSecurityPrivacy preservatione-HealthPersonal Health Information (PHI)

Keywords Plus
PROXY RE-ENCRYPTION

E-Health

6-Barriers and facilitators to the use of e-health by older adults: a scoping review

By Wilson, J (Wilson, Jessica) [1] ; Heinsch, M (Heinsch, Milena) [1] ; Betts, D (Betts, David) [2] ; Booth, D (Booth, Debbie) [3] ; Kay-Lambkin, F (Kay-Lambkin, Frances) [1] (provided by Clarivate) **Source BMC PUBLIC HEALTH Volume 21 Issue 1 DOI 10.1186/s12889-021-11623-w Article Number 1556 Published AUG 17 2021 Indexed 2021-08-17 Document Type Article**

Abstract

Background Limited attention has been paid to how and why older adults choose to engage with technology-facilitated health care (e-health), and the factors that impact on this. This scoping review sought to address this gap. Methods Databases were searched for papers reporting on the use of e-health services by older adults, defined as being aged 60 years or older, with specific reference to barriers and facilitators to e-health use. Result 14 papers were included and synthesised into five thematic categories and related subthemes. Results are discussed with reference to the Unified Theory of Acceptance and Use of Technology2. The most prevalent barriers to e-health engagement were a lack of self-efficacy, knowledge, support, functionality, and information provision about the benefits of e-health for older adults. Key facilitators were active engagement of the target end users in the design and delivery of e-health programs, support for overcoming concerns privacy and enhancing self-efficacy in the use of technology, and integration of e-health programs across health services to accommodate the multi-morbidity with which older adults typically present. Conclusion E-health offers a potential solution to overcome the barriers faced by older adults to access timely, effective, and acceptable health care for physical and mental health. However, unless the barriers and facilitators identified in this review are addressed, this potential will not be realised.

Keywords
Author Keywords
Mobile healthE-mental healthAcceptanceEngagementMultimorbidity

Keywords Plus
MENTAL-HEALTHINFORMATION-TECHNOLOGYCAREACCEPTANCEMANAGEMENTSERVICESPATIENTSUPPORT

E-Health

7-Factors that influence the implementation of e-health: a systematic review of systematic reviews (an update)

By Ross, J (Ross, Jamie) [1] ; Stevenson, F (Stevenson, Fiona) [1] ; Lau, R (Lau, Rosa) [1] ; Murray, E (Murray, Elizabeth) [1] (provided by Clarivate) **Source IMPLEMENTATION SCIENCE Volume 11 DOI 10.1186/s13012-016-0510-7 Article Number 146 Published OCT 26 2016 Indexed 2016-10-26 Document Type Review**

Abstract

Background: There is a significant potential for e-health to deliver cost-effective, quality health care, and spending on e-health systems by governments and healthcare systems is increasing worldwide. However, there remains a tension between the use of e-health in this way and implementation. Furthermore, the large body of reviews in the e-health implementation field, often based on one particular technology, setting or health condition make it difficult to access a comprehensive and comprehensible summary of available evidence to help plan and undertake implementation. This review provides an update and re-analysis of a systematic review of the e-health implementation literature culminating in a set of accessible and usable recommendations for anyone involved or interested in the implementation of e-health.

Methods: MEDLINE, EMBASE, CINAHL, PsycINFO and The Cochrane Library were searched for studies published between 2009 and 2014. Studies were included if they were systematic reviews of the implementation of e-health. Data from included studies were synthesised using the principles of meta-ethnography, and categorisation of the data was informed by the Consolidated Framework for Implementation Research (CFIR). Results: Forty-four reviews mainly from North America and Europe were included. A range of e-health technologies including electronic medical records and clinical decision support systems were represented. Healthcare settings included primary care, secondary care and home care. Factors important for implementation were identified at the levels of the following: the individual e-health technology, the outer setting, the inner setting and the individual health professionals as well as the process of implementation. Conclusion: This systematic review of reviews provides a synthesis of the literature that both acknowledges the multi-level complexity of e-health implementation and provides an accessible and useful guide for those planning implementation. New interpretations of a large amount of data across e-health systems and healthcare settings have been generated and synthesised into a set of useable recommendations for practice. This review provides a further empirical test of the CFIR and identifies areas where additional research is necessary.

Keywords

Author Keywords

Implementatione-HealthSystematic reviewUpdateSynthesis

Keywords Plus

CLINICAL DECISION-SUPPORTELECTRONIC MEDICAL-RECORDINFORMATION-SYSTEMSCAREIMPACTTELEMEDICINEFRAMEWORKADOPTIONLESSONSTECHNOLOGIES

E-Health

8-Exploiting smart e-Health gateways at the edge of healthcare Internet-of-Things:A fog computing approach

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By Rahmani, AM (Rahmani, Amir M.) [1] , [2] ; Gia, TN (Gia, Tuan Nguyen) [3] ; Negash, B (Negash, Behailu) [3] ; Anzanpour, A (Anzanpour, Arman) [3] ; Azimi, I (Azimi, Iman) [3] ; Jiang, MZ (Jiang, Mingzhe) [3] ; Liljeberg, P (Liljeberg, Pasi) [3] **(provided by Clarivate) Source FUTURE GENERATION COMPUTER SYSTEMS-THE INTERNATIONAL JOURNAL OF ESCIENCE Volume 78 Page 641-658 Part 2 DOI 10.1016/j.future.2017.02.014 Published JAN 2018 Indexed 2018-01-01 Document Type Article**

Abstract

Current developments in ICTs such as in Internet-of-Things (IoT) and Cyber-Physical Systems (CPS) allow us to develop healthcare solutions with more intelligent and prediction capabilities both for daily life (home/office) and in-hospitals. In most of IoT-based healthcare systems, especially at smart homes or hospitals, a bridging point (i.e., gateway) is needed between sensor infrastructure network and the Internet. The gateway at the edge of the network often just performs basic functions such as translating between the protocols used in the Internet and sensor networks. These gateways have beneficial knowledge and constructive control over both the sensor network and the data to be transmitted through the Internet. In this paper, we exploit the strategic position of such gateways at the edge of the network to offer several higher-level services such as local storage, real-time local data processing, embedded data mining,etc., presenting thus a Smart e-Health Gateway. We then propose to exploit the concept of Fog Computing in Healthcare IoT systems by forming a Geo-distributed intermediary layer of intelligence between sensor nodes and Cloud. By taking responsibility for handling some burdens of the sensor network and a remote healthcare center, our Fog-assisted system architecture can cope with many challenges in ubiquitous healthcare systems such as mobility, energy efficiency, scalability, and reliability issues. A successful implementation of Smart e-Health Gateways can enable massive deployment of ubiquitous health monitoring systems especially in clinical environments. We also present a prototype of a Smart e-Health Gateway called UT-GATE where some of the discussed higher-level features have been implemented. We also implement an IoT-based Early Warning Score (EWS) health monitoring to practically show the efficiency and relevance of our system on addressing a medical case study. Our proof of-concept design demonstrates an IoT-based health monitoring system with enhanced overall system intelligence, energy efficiency, mobility, performance, interoperability, security, and reliability.

Keywords

Author Keywords

Internet of ThingsHealthcareEdge/Fog computingMobilitySmart hospitalHome careSmart gatewaySensor network

Keywords Plus

COMPRESSIONSYSTEMLIGHTWEIGHTWAVELETNURSES

E-Health

9-External validation of clinical prediction models using big datasets from e-health records or IPD meta-analysis: opportunities and challenges

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By Riley, RD (Riley, Richard D.) [1] ; Ensor, J (Ensor, Joie) [1] ; Snell, KIE (Snell, Kym I. E.) [2] ; Debray, TPA (Debray, Thomas P. A.) [3] , [4] ; Altman, DG (Altman, Doug G.) [5] ; Moons, KGM (Moons, Karel G. M.) [3] , [4] ; Collins, GS (Collins, Gary S.) [5] (provided by Clarivate) Source BMJ-BRITISH MEDICAL JOURNAL Volume 353 DOI 10.1136/bmj.i3140 Article Number i3140 Published JUN 22 2016 Indexed 2016-06-22 Document Type Article

Abstract

Access to big datasets from e-health records and individual participant data (IPD) meta-analysis is signalling a new advent of external validation studies for clinical prediction models. In this article, the authors illustrate novel opportunities for external validation in big, combined datasets, while drawing attention to methodological challenges and reporting issues.

Keywords

Keywords Plus

INDIVIDUAL PARTICIPANT DATADEEP-VEIN THROMBOSISPROGNOSTIC MODELINTERNAL VALIDATIONCARDIOVASCULAR RISKWELLS RULEBIASPROBABILITYPERFORMANCEDERIVATION

E-Health

10-Relation of Incident Type 1 Diabetes to Recent COVID-19 Infection: Cohort Study Using e-Health Record Linkage in Scotland

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By McKeigue, PM (McKeigue, Paul M. M.) [1] , [2] ; McGurnaghan, S (McGurnaghan, Stuart) [3] ; Blackbourn, L (Blackbourn, Luke) [3] ; Bath, LE (Bath, Louise E. E.) [4] ; McAllister, DA (McAllister, David A. A.) [2] , [5] ; Caparrotta, TM (Caparrotta, Thomas M. M.) [3] , [4] ; Wild, SH (Wild, Sarah H. H.) [1] , [2] ; Wood, SN (Wood, Simon N. N.) [6] ; Stockton, D (Stockton, Diane) [2] ; Colhoun, HM (Colhoun, Helen M. M.) [2] , [3] (provided by Clarivate) Source
DIABETES CARE Volume 46 Issue 5 Page 921-928 DOI 10.2337/dc22-0385 Published MAY 2023 Indexed 2023-08-23 Document Type Article

Abstract

OBJECTIVEStudies using claims databases reported that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection >30 days earlier was associated with an increase in the incidence of type 1 diabetes. Using exact dates of diabetes diagnosis from the national register in Scotland linked to virology laboratory data, we sought to replicate this finding. RESEARCH DESIGN AND METHODSA cohort of 1,849,411 individuals aged <35 years without diabetes, including all those in Scotland who subsequently tested positive for SARS-CoV-2, was followed from 1 March 2020 to 22 November 2021. Incident type 1 diabetes was ascertained from the national registry. Using Cox regression, we tested the association of time-updated infection with incident diabetes. Trends in incidence of type 1 diabetes in the population from 2015 through 2021 were also estimated in a generalized additive model. RESULTSThere were 365,080 individuals who had at least one detected SARS-CoV-2 infection during follow-up and 1,074 who developed type 1 diabetes. The rate ratio for incident type 1 diabetes associated with first positive test for SARS-CoV-2 (reference category: no previous infection) was 0.86 (95% CI 0.62, 1.21) for infection >30 days earlier and 2.62 (95% CI 1.81, 3.78) for infection in the previous 30 days. However, negative and positive SARS-CoV-2 tests were more frequent in the days surrounding diabetes presentation. In those aged 0-14 years, incidence of type 1 diabetes during 2020-2021 was 20% higher than the 7-year average. CONCLUSIONSType 1 diabetes incidence in children increased during the pandemic. However, the cohort analysis suggests that SARS-CoV-2 infection itself was not the cause of this increase.

Keywords

Keywords Plus

GUT MICROBIOMEUNITED-STATESRISK-FACTORSTRENDS

E-Health

11-Internet- and Mobile-Based Psychological Interventions: Applications, Efficacy, and Potential for Improving Mental Health A Report of the EFPA E-Health Taskforce

By Ebert, DD (Ebert, David D.) [1] ; Van Daele, T (Van Daele, Tom) [2] ; Nordgreen, T (Nordgreen, Tine) [3] ; Karekla, M (Karekla, Maria) [4] ; Compare, A (Compare, Angelo) [6] ; Zarbo, C (Zarbo, Cristina) [5] ; Brugnera, A (Brugnera, Agostino) [5] ; Overland, S (Overland, Svein) [7] ; Trebbi, G (Trebbi, Glauco) [8] ; Jensen, KL (Jensen, Kit L.) ; Group Author EFPA E-Hlth Taskforce (EFPA E-Hlth Taskforce) [1] (provided by Clarivate) **Source EUROPEAN PSYCHOLOGIST Volume 23 Issue 2 Page 167-187 DOI 10.1027/1016-9040/a000318 Published APR 2018 Indexed 2018-04-01 Document Type Review**

Abstract

The majority of mental health disorders remain untreated. Many limitations of traditional psychological interventions such as limited availability of evidence-based interventions and clinicians could potentially be overcome by providing Internet-and mobile-based psychological interventions (IMIs). This paper is a report of the Taskforce E-Health of the European Federation of Psychologists' Association and will provide an introduction to the subject, discusses areas of application, and reviews the current evidence regarding the efficacy of IMIs for the prevention and treatment of mental disorders. Meta-analyses based on randomized trials clearly indicate that therapist-guided standalone IMIs can result in meaningful benefits for a range of indications including, for example, depression, anxiety, insomnia, or posttraumatic stress disorders. The clinical significance of results of purely self-guided interventions is for many disorders less clear, especially with regard to effects under routine care conditions. Studies on the prevention of mental health disorders (MHD) are promising. Blended concepts, combining traditional face-to-face approaches with Internet- and mobile-based elements might have the potential of increasing the effects of psychological interventions on the one hand or to reduce costs of mental health treatments on the other hand. We also discuss mechanisms of change and the role of the therapist in such approaches, contraindications, potential limitations, and risk involved with IMIs, briefly review the status of the implementation into routine health care across Europe, and discuss confidentiality as well as ethical aspects that need to be taken into account, when implementing IMIs. Internet- and mobile-based psychological interventions have high potential for improving mental health and should be implemented more widely in routine care.

Keywords

Author Keywords

ehealthmhealthpreventiontreatmenttreatment gapInternet-based guided self-helppsychotherapymental health

Keywords Plus

COGNITIVE-BEHAVIOR THERAPYGUIDED-SELF-HELPRANDOMIZED CONTROLLED-TRIALOBSESSIVE-COMPULSIVE DISORDERGENERALIZED ANXIETY DISORDERMAJOR DEPRESSIONGLOBAL BURDENSUBTHRESHOLD DEPRESSIONPOSTTRAUMATIC STRESSCOMMITMENT THERAPY