Ideas MELting pot for TIC and Health science for Citizens in small communities (MELTIC)

WP2: Analysis of ICTs state of the art
Deliverable D2: Literature review (M3)

May, 2020
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## 1. Version control

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**Date of acceptance by ORION:**
2. Summary

2.1. General Objective of MELTIC

The aim of the project is to make research activities in ICT in Health and Biomedicine more open, transparent, and accessible in order to increase its research and societal impact and contribute thereby to improve the quality of life of European citizens in small communities. To support innovative and exciting initiatives to bring together different stakeholder groups to co-create research in ICT in Health and Biomedicine.

2.2. Specific Objectives

To co-produce suitable ideas for research in topics such as self-learning, false information discrimination and addiction prevention (ludopathy to games and gambling). The leading issue is how to use smart technologies to transform public spaces in small communities into people-friendly humane environments.
3. Objective

This document outlines the literature review for the “Ideas MELting pot for TIC and Health science for Citizens in small communities (MELTIC)” project, funded by the ORION Open Science project call for novel co-creation initiatives to open up research in life sciences and biomedicine.

3.1. General Objective of systematic review

The use of smart technologies in public spaces is increasingly creating new forms of social interactions and practices, which in return creates new socio-spatial relations and promotes interactions and communication between isolated and disperse communities. This argues for the need to re-think social practices and the use of public spaces, which in turn might also have an impact on the development of ICTs and their devices. The intertwining of real and virtual worlds also opens up new ways of advancing knowledge, gathering and interpreting the data, and disseminating the acquired knowledge.

It is astounding how developments in electronics, information and telecommunications permeate our daily lives, and almost every day something new is aggregated. Disciplines of Health and Information and Communications Technologies to improve the quality of life of European citizens in small communities along MELTIC project connects with diverse European Policy challenges such as depopulation, health, active aging, education, youth and climate change and seeks to identify current and future. Research in ICT in Health and Biomedicine, in topics such as self-learning, false information discrimination and ludopathy prevention in order to innovate about the use of existing public spaces and/or build new ones.

We are experiencing a digital era of real-time transmission of data and immense computing power. It is astounding how developments in electronics, information and telecommunications permeate our daily lives, and almost every day something new is aggregated. To set a comprehensive baseline for our project, a review of the state of art of the use of technologies in projects, activities and initiatives are developed:

a) That include aspects of interaction among users, ICT and social behaviour,
b) For spatial analyses, planning methodologies and public involvement
   c) On-line games
4. Material and Methods

A computerized literature search was conducted on Medline, the Cochrane Library, WOS, SCOPUS, and the other not included in PubMed: MDPI, IEEE Xplore and Google Scholar in order to identify relevant articles published between 2016 and 2020.

The keywords used in searching articles for effective results were a combination of ("telemedicine" OR "smartphone" OR "mobile application (app)" OR "Internet" OR "mHealth" OR "eHealth" OR "Internet of Things" OR "IoT") AND ("relapse prevention" OR "substances Use Disorder" OR "behavioural intervention" OR "rural treatment" OR "prevention" OR "rehabilitation" OR "harmful habits" OR "risk reduction behavior"). The keywords used to search articles were a combination of the previous ones. Systematic reviews that were found initially have then been used to identify additional relevant studies. The absence of homogeneous criteria among authors to choose keywords to describe their papers may have an undesirable consequence: an indeterminate number of papers may have been omitted by search engines.

4.1. Inclusion and exclusion criteria

The criteria for inclusion required that the studies: (1) deal with patients or patients’ environments that use or form part of a ITC system, (2) have an evaluation of usability (3) be published in English (4) Open Access
Table 1. Inclusion criteria

<table>
<thead>
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<tr>
<td>Selected articles</td>
<td>use of technologies in projects, activities and initiatives:</td>
</tr>
<tr>
<td></td>
<td>a) That include aspects of interaction among users, ICT and social behaviour,</td>
</tr>
<tr>
<td></td>
<td>b) For spatial analyses, planning methodologies and public involvement</td>
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<td></td>
<td>c) On-line games</td>
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<tr>
<td>Type</td>
<td>Scientific papers and reviews</td>
</tr>
<tr>
<td>Population</td>
<td>General population, patients, workers, young adults, adolescents, elderly people</td>
</tr>
<tr>
<td>Publication date</td>
<td>From 2016.</td>
</tr>
<tr>
<td>Language</td>
<td>English</td>
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We have excluded editorials, letters, opinion papers, and studies dealing with questionaries, health management, data protection, ethic and legal aspects and only technical descriptions. We have also excluded those studies related with hospital care or specialty care.

Table 2. Exclusion criteria

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<th>Variables</th>
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<td>Exclusion Criteria</td>
<td>Not adjusted to inclusion criteria. Editorials, Letters, and Opinion Papers</td>
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<tr>
<td>Different Data Base</td>
<td>Duplicated or previous study ampliation</td>
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<tr>
<td>Application</td>
<td>Hospital care or speciality care as well as those studies which dealt with questionaries, health management, data protection, ethical and legal aspects, only technical description</td>
</tr>
<tr>
<td>Results</td>
<td>Questionary</td>
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<tr>
<td>Not obtained articles</td>
<td>Previous asking</td>
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<tr>
<td>Not original studies</td>
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4.2. Data synthesis

Two authors independently reviewed the selected papers and read the abstracts, in order to decide whether those papers should be read in their entirety. Once those studies were read, another filter was utilized in order to avoid duplication of studies or redundant material. For each study, a checklist to classify the type of paper was filled in, together with a form that included the main data or the study (reference, year, results, etc.).

Search strategies developed through electronic databases and manual search identified a total of 803 references. After eliminating duplicates and other inaccurate results, 623 were excluded and 180 were finally taken into account. Other systematic reviews carried out by different authors some years or months before were also very useful in identifying and including relevant studies not located by search engines. They have been divided by technology used in the studies, and according to the type of socio-medical application studies.

Publication types reviewed were: Article, Review and Short Survey, Editorials, Letters, and Opinion Papers were excluded as well as those studies which dealt with protection data, ethical and legal aspects, questionaries, health management, or only technical descriptions. We have also excluded those studies related with hospital care or specialty care. No restrictions were imposed on the quality of the study design, as studies are very heterogeneous. In Annexe 1 are papers included.

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Figure 2. Paper selected
5. Results

Although most of the papers collected only partially cover the subject matter, the research performed for this document clearly demonstrates the high number of publications during recent years. The last 5 years were chosen to obtain a more accurate view of the technology currently available and their frequent uses.

The number of papers does not seem to have increased significantly since 2016 as Figure 3 shows. The 180 papers finally included in our review were classified into 4 categories taking into account linkage with IT means and social categories: (risk) behavior, (uses and abuses of unhealthy) substances, online game and education.

In Figure 4 it is presented papers which mention 4 previous categories presented from 2016 to 2020 (Npapers: 180)
The technology currently available and frequently used as presented in Figure 5. Technologies than provide useful help to patients, healthcare professionals, caregivers, men, women, wokers, general public, children, adolescents, .... in environments studied.

![Figure 5. Applications Areas in terms of ICT (Npapers: 180)](image)

In this work, the two categories which are of most interest to the authors are the WEB platform and Smartphone applications (APP). Both characterize more frequently used in our interest scenarios, presented in 150 papers. The works founded confirm the consolidation of the WEB platforms and Smartphones (APPs) in comparison with the other technological options in the last 5 years and reaffirms the technological option proposed in MELTIC.

In Figure 6 are showed the different technologies that can provide useful help to stakeholders in 29 social and healthcare environments. In Figure 7 we present users along 2016-2020.

![Figure 6. Users (Npapers: 180)](image)

*ORION has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 741527.*
Figure 7. Users 2016-2020 (Npapers=180)
6. Discussion

This research identifies relevant studies which exemplify the penetration of ICT in social and healthcare environments in real work flows. Most of the papers included only partially cover the subject matter about ICT in Health and Biomedicine and how to use smart technologies to transform public spaces in small communities into people-friendly human environments and promotes interactions and communication between isolated and disperse communities.

The research performed for this chapter clearly demonstrates the high number of publications on technology assessments. However, in despite of a large number of studies found, there is a lack of publications evaluating co-creation methodology, only observed in references [1] and [2] in relation to children obesity and hearth diseases. The number of articles dedicated to rural populations or regions with a dispersed population is also a scale in references [3], [4] and [5]. The works focused on population with minority or marginal conditions, depressed areas as in [6] and the existence of the digital gap presented in [7] have been considered interesting to highlight.

In Figure 3 and Figure 4, we observed that more than half of publications grouped as Behavior refers to the use of technologies to promote healthy habits or to change risky behaviors. Further, participants in several works also expressed the importance of having non-judgmental Information and they highlight the possibility of maintaining anonymity and without subjecting stigmatization. There is a great potential for health promotion practitioners to be engaged in app development for the purpose of promoting healthy behavior along all life, from early years to elder and health promotion in general. Another aspect described is the possibility of cultural adaptation of evidence-based Western therapies or behavior and is an important step toward better prevention and treatment of syndromes and illness in different communities by means of support of smartphone.

After reviewing the works, it can be stated that smartphone-based interventions play a key role in enabling the ubiquitous and proactive social and health monitoring and care services of the future and have the potential to reach a high amount of population completing what is available in Internet. Six ICT Technologies for tracking and monitoring have been showed in papers and reflected in Figure 5. and these include the use of WEB access and the use of Smartphones (APPs). Nevertheless, few papers show that access through apps does not ensure necessarily it enough usage but, in addition, it is assessed whether using the smartphone application is effective in decreasing substances used. Thus, the secondary research question is: “Is using a smartphone application targeting unhealthy substance use effective in reducing consume?”

Analysed works confirm the consolidation of the WEB platforms and Smartphones (APPs) in comparison with the other technological options in the last 5 years and reaffirms the technological option proposed in MELTIC.

This review has found important efforts dedicated at the dissemination of Internet-based interventions for prevention, treatment, and management of different disorders across countries, and should consider the effects that different recruitment channels and access paths may have on sample composition and utilization of the intervention.
The relationship between the general population and the smartphone both in relation to the attention to the new models of care that are oriented to navigate on the mHealth, we generally are today assisting to: a) an increasing interest on health of young subjects: in particular, recently special attention is devoted to the relation with the new forms of addiction caused by the mobile-technologies b) the creation of Apps for an asynchronous by remote psychological self therapy based on virtual reality (VR) and augmented reality (AR) with and without exergames, App based on exergames c) the creation of Apps for the self-awareness and empowerment for the correct use of the smartphone, as for example Apps that returns information on the time of use of different smartphone applications and d) an increasing interest to the design and assess models of care with a high technological content for providing psychological therapy to young subjects using the same technologies and /tools with whom they are familiar.

An aspect that appears in some works is the social evaluation about “digital divide” that conditions in important way interventions based on mobile, computer and Internet use in depressed areas [6] and [7]. Possible reasons include that it is not practical to deliver those interventions to the community en masse due to limited health care resources and the limited availability of evidence-based interventions and clinicians in routine practice, especially in rural areas.

In relations to Internet gaming disorder, a program evaluation study was conducted to assess the social impact of this program in mitigating symptoms of Internet gaming disorder and risky mobile or online behavior, and in bolstering emotional well-being. Disorders about risky online behavior are studied in a similar way as another risky behavior is. The great diffusion of ICT among young people and adolescents means that interventions are proposed to be practiced by them but focused on their parents substance use problems or mental illness.

Finally, a study that is peculiar and with difficul explanation is the first study indicating that an online program for prevention and early intervention may serve as facilitator in accessing conventional healthcare.
7. Conclusions

This research identifies relevant studies which exemplify the penetration of ICT in social and healthcare environments in real work flows. Most of the papers included only partially cover the subject matter about ICT in Health and Biomedicine and how to use smart technologies to transform public spaces in small communities into people-friendly human environments and promotes interactions and communication between isolated and disperse communities.

After reviewing the works, it can be stated that ICT in social and healthcare environments play a key role in enabling the ubiquitous and proactive health monitoring and health care services of the future.

Future ICT in Health and Biomedicine are likely to require an even greater amount of data derived from a multitude of different sensors. The algorithms employed within these applications will become computationally more complex, resulting in a higher processing effort. Also, depending on the use of case scenarios, different applications put higher demands on Internet and Mobile communications. At the same time, the new social and health care environments should operate the use of technologies to promote healthy habits or to change risky behaviors and having non-judgmental Information and possibility of maintaining anonymity and without subjecting stigmatization. Here is presented the great potential for health promotion practitioners in app development in order to promote healthy behavior along all life with the possibility of cultural adaptation and also help to fight against depopulation in rural areas.

The fact that the most studied technology are WEB platforms and Smartphone (APPs), as shown in Figure 5, and that the percentage of studies dedicated to the assessment of the other four technologies is low, leads to confirm the consolidation of the WEB platforms and Smartphones (APPs) in comparation with the other technological options in the last 5 years and reaffirms the technological option proposed in MELTIC.

The use of ICT in social and healthcare environments provides a lot of benefits and an important advance in transform public spaces and promotes interactions and communication between isolated and disperses communities, improving the efficiency, quality, equity, interactions and communication and promotes interactions and communication between isolated and disperse communities.

But these successful factors may be accompanied by drawbacks about evaluating co-creation methodology, rural populations or regions with a dispersed population, minority or marginal conditions, depressed areas and the existence of the digital gap have been considered interesting to highlight. The study of these critical factors can guide not only in the promotion, but also in the prevention in social and healthcare applications.
8. Strength and Limitation of review

8.1. Strength

- Systematic review from 2016 along the last 5 years
- WEB platform and Smartphones (APPs) Technologies seem to be consolidated without big variations along these 5 years
- Great diversity of potential users

8.2. Limitations

- The evaluation of the methodological quality of studies has not been an easy task because of the heterogeneity of the papers included in the review.
- Most of the papers included only partially cover the subject matter.
- Limitacion or confusion about terms eHealth, Telemedicine, mHealth. For example, mHealth sometimes is refered as e-mail, sometime refered as mobilephone....
- Difference between the user recruitment process and adherence to the study as well as the results obtained
- An indeterminate number of papers may have been omitted by search engines due to the absence of homogeneous criteria to choose keywords to describe their papers.
9. References

[1] Giorgi Rossi, Paolo Ferrari, Francesca Amarri, Sergio Bassi, Andrea Bonvicini, Laura Dall'Aglio, Luca Della Giustina, Claudia Fabbrì, Alessandra Ferrari, Anna Maria Ferrari, Elena Fontana, Marta Foracchia, Marco Gallelli, Teresa Ganugi, Giulia Allari, Barbara Lo Scocco, Sara Maestri, Gianluca Moretti, Veronica Panza, Costantino Pinotti, Mirco Prandoni, Riccardo Storani, Simone Street, Maria Elisabeth Tamelli, Marco Trowbridge, Hayely Venturelli, Francesco Volta, Alessandro Davoli, Anna Maria “Using Co-creation to Define Contents and Functions of a Smartphone App for Obesity Prevention in Childhood: Mixed Method Study Describing the Process”. JMIR Mhealth Uhealth. 2020 Feb 21. PMID: 32357123 DOI: 10.2196/16165

[2] Linda Mansson; Maria Wiklund; Fredrik Öhberg; Karin Danielsson; Marlene Sandlund “Co-creation with older adults to improve user experience of a smartphone self-test application to assess balance function” Int. J. Environ. Res. Public Health 2020, 17(11), 3768; https://doi.org/10.3390/ijerph17113768 (registering DOI)


10. Tables and Figures
Table 1. Inclusion criteria
Table 2. Exclusion criteria

Figure 1. Computerized literature search. Data Base consulted
Figure 2. Paper selected
Figure 3. Papers in 4 categories
Figure 4. Papers in 4 social categories 2016-2020 (Npapers: 180)
Figure 5. Applications Areas in terms of ICT (Npapers: 180)
Figure 6. Users (Npapers: 180)
Figure 7. Users 2016-2020 (Npapers=180)
11. ANNEX 1. Papers included.

- Kwon, Myung SoonYu; Jeong Soon “Development and Effect of a Smartphone Overdependence Prevention Program for University Students Based on Self-Determination Theory” 2020
- Delisle Nystrom, Christine Sandin, Sven Henriksson, Pontus Henriksson, Hanna Maddison, Ralph Lof, Marie “A 12-month follow-up of a mobile-based (mHealth) obesity prevention intervention in pre-school children: the MINISTOP randomized controlled trial” 2020
- Emily T Hébert; Chaelin K Ra; Adam C Alexander; Angela Helt; Rachel Moisiuc; Darla E Kendzor; Damon J Vidrine; Rachel K Funk-Lawler; Michael S Businelle “A Mobile Just-in-Time Adaptive Intervention for Smoking Cessation: Pilot Randomized Controlled Trial” 2020
- Bardus, M., Hamadeh, G., Hayek, B., Al Kherfan, R “A self-directed mobile intervention (WaznApp) to promote weight control among employees at a lebanese university: Protocol for a feasibility pilot randomized controlled trial” 2020
- Winskell, K., Sabben, G.e, Akelo, V.a, Ondeng’E, K.a, Obong’O, C.b, Stephenson, R.c, Warhol, D.d, Mudhune, V.a “A smartphone game-based intervention (Tumaini) to prevent HIV among young Africans: Pilot randomized controlled trial” 2020
- Sun, M., Tang, S., Chen, J., Li, Y., Bai, W., Plummer, V., Lam, L., Qin, C., Cross, W.M “A study protocol of mobile phone app-based cognitive behaviour training for the prevention of postpartum depression among high-risk mothers” 2020
- Kirkman, J.J.L., Leo, B., Moore, J.C “Alcohol consumption reduction among a web-based supportive community using the hello sunday morning blog platform: Observational study” 2020
- Bonn, S.E., Lof, M., Östenson, C.-G., Trolle Lagerros, Y “App-technology to improve lifestyle behaviors among working adults - The Health Integrator study, a randomized controlled trial” 2020
- Stavropoulos, V., Mastrotheodoros, S., Burleigh, T.L., Papadopoulos, N., Gomez, R. “Avoidant romantic attachment in adolescence: Gender, excessive internet use and romantic relationship engagement effects” 2020
- Taki, Sarah; Russell, Catherine; GWen, Li M; Laws, Rachel; A Campbell; Karen Xu, HuilanDenny-Wilson, Elizabeth “Consumer Engagement in Mobile Application (App) Interventions Focused on Supporting Infant Feeding Practices for Early Prevention of Childhood Obesity” 2020
- Patel, Unnatj; Sobowale, Kunmi; Fan, Jingyi; Liu, Nina; Kuwabara, Sachiko; Lei, Zhang; Sherer, Renslow; Van Voorhees, Benjamin “Cultural considerations for the adaptation of an Internet-based intervention for depression prevention in Mainland China” 2020
- Barbera, Mariagnese; Mangialasche, Francesca; Jorgstra, Susan; Guillemont, Juliette; Ngandu, Tiia; Beishuizen, Cathrien; Coley, Nicola; Brayne, Carol; Andrieu, Sandrine; Richard, Edo; Soininen, Hilka; Kivipelto, Miia. “CAHATICE study group. Designing an Internet-Based Multidomain Intervention for the Prevention of Cardiovascular Disease and Cognitive Impairment in Older Adults: The HATICE Trial” 2020
- Ponum, M., Hasan, O., Khan, S “Easy detect disease: an android app for early symptom detection and prevention of childhood infectious diseases” 2020
- Lin, Y., Tudor-Sfeeta, C., Siddiqui, S., Sherwani, Y., Ahmed, M., Eisingerich, A.B “Effective behavioral changes through a digital mHealth application: Exploring the impact of hedonic well-being, psychological empowerment and inspiration” 2020
- Moessner, Markus; Minarik, Carla; Ozer, Fikret; Bauer, Stephanie “Effectiveness and Cost-effectiveness of School-based Dissemination Strategies of an Internet-based Program for the Prevention and Early Intervention in Eating Disorders: A Randomized Trial”. 2020
- Leif Boß; Dirk Lehr; Michael Patrick Schaub; Raquel Paz Castro; Heleen Riper; Matthias Berking; David Daniel Ebert “Efficacy of a web-based intervention with and without guidance for employees with risky drinking: results of a three-arm randomized controlled trial” 2020
- Deady, MChoi, iCalvo, R A Glozier, N Christensen, HHarvey, S B “eHealth interventions for the prevention of depression and anxiety in the general population: a systematic review and meta-analysis.” 2020
- Paige, Samantha RStellefson, Michael Chaney, Beth H Chaney, J DonAlber, Julia MChappell, Chelsea Barry, Adam E “Examining the Relationship between Online Social Capital and eHealth Literacy: Implications for Instagram Use for Chronic Disease Prevention among College Students”. 2020
- Pedro Gamito; Jorge Oliveira; Paulo Lopes; Rodrigo Brito; Diogo Morais; Diana Silva; Ana Silva; Sara Rebelo; Marta Bastos; Alberto Deus “Executive Functioning in Alcoholics Following an mHealth Cognitive Stimulation Program: Randomized Controlled Trial” 2020
- Ming-Yuan Chih “Exploring the use patterns of a mobile health application for alcohol addiction before the initial lapse after detoxification” 2020
- Chau, Chor-Lam Tsui, Yvonne Yin-Yau Cheng, Cecilia “Gamification for Internet Gaming Disorder Prevention: Evaluation of a Wise IT-Use (WIT) Program for Hong Kong Primary Students” 2020
- Ribeiro, Nuno; Moreira, Luis; Barros, Ana; Almeida, Ana; Margarida Santos; Silva, Filipe “Guidelines for a cancer prevention smartphone application: A mixed-methods study” 2020
- Damasceno, É.B., Cortez, L.C.A., Ferreira, F.S., Silva, M.F.S, de Melo, L.P. “Something that is so simple to experience and control, yet difficult to share and defend: HIV/Aids, secrets and sociability in an on-line social network” 2019
- Frederick Muench; Katherine van Stolk-Cooke; Alexis Kuerbis; Gertraud Stadler; Amit Baumel; Sijing Shao; James R. McKay; Jon Morgenstern “A Randomized Controlled Pilot Trial of Different Mobile Messaging Interventions for Problem Drinking Compared to Weekly Drink Tracking” 2019
- Nugroho, A.a, Erasmus, V.a, Zomer, T.P.b, Wu, Q.a, Richardus, J.H.a “Behavioral interventions to reduce HIV risk behavior for MSM and transwomen in Southeast Asia: a systematic review” 2019
- Linda Manssson; Maria Wiklund; Fredrik Öhberg; Karin Danielsson; Marlene Sandlund “Co-creation with older adults to improve user experience of a smartphone self-test application to assess balance function” 2019
- Heayon Lee; Yu Rang Park; Hae-Reong Kim; Na Young Kang; Gahee Oh; Il-Young Jang; Eunju Lee “Discrepancies in Demand of Internet of Things Services Among Older People and People With Disabilities, Their Caregivers, and Health Care Providers: Face-to-Face Survey Study” 2019
- Ip, PatrickChim, DavidChan, Ko LingLi, Tim M HHo, Frederick Ka WingVan Voorhees, Benjamin WTiwari, AgnesTsang, AnitaChan, Charlie Wai LeungHo, MatthewTso, WinnieWong, Wilfred Hing Sang “Effectiveness of a culturally attuned Internet-based depression prevention program for Chinese adolescents: A randomized controlled trial” 2019
- MacPherson, M.M., Merry, K.J., Locke, S.R., Jung, M.E “Effects of mobile health prompts on self-monitoring and exercise behaviours following a diabetes prevention program: Secondary analysis from a randomized controlled trial” 2019
- Poppe, L., De Bourdeaudhuij, I., Verloigne, M., Shadid, S., Van Cauwenberg, J., Compernolle, S., Crombez, G “Efficacy of a self-regulation-based electronic and mobile health intervention targeting an active lifestyle in adults having type 2 diabetes and in adults aged 50 years or older: Two randomized controlled trials” 2019
- Stormshak, Elizabeth ASeeley, John RCaruthers, Allison SCardenas, LuciaMoore, Kevin JTyler, Milagra SFleming, Christopher MGau, JeffDanaher, Brian “Evaluating the efficacy of the Family Check-Up Online: A school-based, eHealth model for the prevention of problem behavior during the middle school years” 2019
- James R. McKay; Deborah Van Horn; David Oslin; Megan Ivey; Michelle Drapkin; Donna Coviello; Qin Yu; Kevin G. Lynch “Extended Telephone-Based Continuing Care for Alcohol Dependence: 24 Month Outcomes and Subgroup Analyses” 2019
- Paul, E., Mergl, R., Hegerl, U “Has information on suicide methods provided via the Internet negatively impacted suicide rates?” 2019
- Smail-Crevier, R., Powers, G., Noel, C., Wang, J “Health-related internet usage and design feature preference for e-mental health programs among men and women” 2019
- Kobra Etminani; Arianna Tao Engström; Carina Göransson; Anita Sant’Anna; Slawomir Nowaczyk “How Behavior Change Strategies are Used to Design Digital Interventions to Improve Medication Adherence and Blood Pressure Among Patients With Hypertension: Systematic Review” 2019
- Yumei Li and Xiangbin Yan “How could peers in online health community help improve health behavior” 2019 Fiona M. McTavish; Ming-Yuan Chih; Dhavan Shah; David H. Gustafson; “How Patients Recovering From Alcoholism Use a Smartphone Intervention” 2019
- Narvaez, SantiagoTobar, Angela MLope, Diego MBlobel, Bernd “Human-Centered Design of an mHealth App for the Prevention of Burnout Syndrome” 2019
- Doty, J.L., Rudi, J.H., Pinna, K.L.M., Hanson, S.K., Gewirtz, A.H “If you build it, will they come? patterns of internet-based and face-to-face participation in a parenting program for military families” 2019
- Luis Marco-Ruiz; Rolf Wynn; Sunday Oluwafemi Oyeyemi; Andrius Budrionis; Kassaye Yitbarek Yigzaw; Johan Gustav Bellika “Impact of Illness on Electronic Health Use (The Seventh Tromsø Study - Part 2): Population-Based Questionnaire Study” 2019
- Partridge, Stephanie RMcGeechan, KevinBauman, AdrianPhongsavan, PhylaryathAllman-Farinelli, Margaret “Improved eating behaviours mediate weight gain prevention of young adults: moderation and mediation results of a randomised controlled trial of TXT2BFiT, mHealth program” 2019
- Hennemann, SeverinFarnsteiner, SylviaSander, Lasse “Internet- and mobile-based aftercare and relapse prevention in mental disorders: A systematic review and recommendations for future research” 2019
- Waszak, Przemyslaw; Maciej Gorski; Patryk Springer; Janusz Kasprzycka-Waszak; Wioleta Duzy; Marta Zagodziñ Pawel “Internet searches for "suicide", its association with epidemiological data and insights for prevention programs” 2019
- Nishi, Daisukelmamura, Kotaro Watanabe, Kazuhiro Obikan, Erika Sasaki, Natsu Yasuma, Naonori Sekiya, Yuki Matsuyama, Yutaka Kawakami, Norito “Internet-based cognitive-behavioural therapy for prevention of depression during pregnancy and in the post partum (iPDP): a protocol for a large-scale randomised controlled trial” 2019
- Jimenez-Molina, Alvaro; Franco, Pamela; Martinez, Vania; Martinez, Pablo; Rojas, Graciela; Araya, Ricardo “Internet-Based Interventions for the Prevention and Treatment of Mental Disorders in Latin America: A Scoping Review” 2019
- Newton, Nicola; Clare Chapman, Cath Slade, Tim Conroy, Chloe Thornton, Louise Champion, Katrina Elizabeth Stapinski, Lexine Koning, Ina Teesson, Maree “Internet-Based Universal Prevention for Students and Parents to Prevent Alcohol and Cannabis Use Among Adolescents: Protocol for the Randomized Controlled Trial of Climate Schools Plus” 2019
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