

Digital Applications in Mental Health Support: SMILE Project

Non-Scientific Article: Insights from SMILE's Intervention in the second edition of the Joint Mental Health Dialogues Webinar Series.

Presented By



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Short Description:

This non-scientific article examines the innovative use of digital applications in mental health support within the framework of the **SMILE EU-funded project**. The content is built around the intervention of **Dr. Habib Nasser**, co-founder and CEO of **RDIUP**, during the second edition of the **Mental Health Dialogues Series**, co-organised by seven EU-funded projects, including **ADVANCE**, **ASP-Belong**, **BootStRaP**, **IMPROVA**, **MENTBEST**, **RECONNECTED**, and **SMILE**.

Held on October 04, 2024, this landmark webinar titled **Digital Applications in Mental Health Support** convened leading researchers, developers, and practitioners from across Europe to discuss how digital solutions can transform mental health support. Dr. Nasser showcased SMILE's innovative digital interventions aimed at enhancing youth mental well-being, such as the **SMILE Serious Game**, **Companion Mobile App**, **Decision Support System**, **Chatbot** and other digital components, all designed to improve mental health outcomes.

For additional resources, refer to the annex, which includes key materials from the webinar, such as the **General Poster** of the webinar, the **Speakers' Poster**, **Dr. Habib Nasser's Individual Card and Bio**, the **Webinar Series Registration QR Code and Link**, and the **One-Stop-Shop** providing access to all channels related to the seven EU-funded projects involved.

Introduction:

General Introduction

In a world where mental health challenges are increasingly prevalent, the **SMILE Project** is taking bold steps to harness the power of digital technology to support young people's well-being. With a partnership of 15 organisations across Europe, SMILE is developing cutting-edge tools and services aimed at helping youth aged 10 to 24 navigate their mental health journeys. The project's digital tools and services will be implemented and validated through **eight real-life strategic case studies** across seven European countries: Cyprus, Germany, Italy, Poland, Slovenia, Spain, and UK.

As the importance of digital applications in mental health care continues to grow, initiatives like SMILE and its sister projects are pioneering new ways to leverage technology to address pressing mental health issues. This second Joint Webinar epitomised a united effort to revolutionise mental health care through technology, showcasing a range of unique approaches, each bringing unique tools, all designed to empower individuals, healthcare providers, and communities in tackling mental health challenges. The **SMILE Project** stood out for its commitment to co-creating digital services specifically tailored to youth mental health. **Dr. Habib Nasser's** presentation highlighted how SMILE's innovative digital solutions are empowering both young people and clinicians to better manage mental health concerns.

Digital Applications for Mental Health Support in SMILE: Specific Technologies

At the heart of the **SMILE Project** are digital applications designed to engage and support end-users in their mental health journeys, with a particular emphasis on addressing **depression** and **anxiety risks** among adolescents. Additionally, SMILE aims to assist clinicians in making **faster and more accurate diagnoses**; central to this initiative is an **explainable decision support system**, which enhances the clinical decision-making processes by providing clear and actionable insights. Two key digital applications were discussed during the webinar:

- **The Companion Mobile App:** This user-friendly application, developed by **RDIUP**, is designed to streamline **data collection** and support mental health monitoring. It includes several **validated questionnaires**, such as **PHQ9**, **GAD7**, **well-being assessments**, and **weekly diary video recordings**. Users are also prompted with five daily **Experience Sampling Method (ESM)** questionnaires to track their mental state in real time. The App features a secure **peer-to-peer** support system that facilitates chat room discussions and voice calls. Additional features include a dashboard for **personalised feedback**, a **gamified educational section** covering lifestyle and nutrition best practices, and an **assistive chatbot**. By promoting self-awareness and engaging users in well-being activities, the Companion App aims to enhance mental health literacy and overall well-being.
- **CBT-Driven Gamification App:** Targeted towards adolescents, this game is grounded in **Cognitive Behavioural Therapy (CBT)** principles. It helps users develop critical **coping skills**, improve **cognitive flexibility**, and build **resilience**.

against mental health challenges. The SMILE Serious Game employs **personalised scenarios** and **digital interventions**, such as **storytelling** to encourage **positive thought patterns** and effective **problem-solving** in stressful situations.

The **SMILE team** is currently working on a **prototype** that integrates **all SMILE modules**.

Key Themes from the webinar

The webinar shed light on several crucial themes that will shape the future of digital mental health support. Dr. Nasser and other panellists engaged in lively discussions around three main topics: **data privacy and security**, **user engagement and adherence**, and the **human-in-the-loop approach**.

Data Privacy and Security in SMILE

Recent studies indicate a growing scepticism among users regarding digital applications, particularly concerning data privacy. As digital applications collect increasing amounts of personal information, ensuring the protection of sensitive mental health data is a top priority for the SMILE project and its fellow sister projects. Dr. Habib Nasser outlined how SMILE addresses data privacy concerns and maintains security for its users:

- **GDPR Compliance:** All tools are designed with strict adherence to GDPR guidelines and ethical standards from the early design phase.
- **User Consent:** Consent is collected from all users during recruitment, with clear communication about their rights and how their data will be used.
- **Data Security Measures:** Personal data is secured via a Keycloak server, employing techniques such as JWT, encryption, and authentication.
- **Structured Storage:** Patient-related information is stored on a dedicated FHIR server, ensuring privacy and data protection.
- **Dynamic Authorisation:** The use of the SAPL tool in SMILE allows for dynamic authorisation based on user roles and access policies.
- **Anonymisation:** To protect user identity, particularly for young people, the mobile and gamification apps represent users through avatars, fostering a safe and encouraging environment for participation.

User Motivation and Adherence in SMILE

Maintaining user motivation and adherence to digital health interventions poses a universal challenge. Dr. Nasser emphasised the importance of creating intuitive and user-friendly designs that not only motivate initial use but also support long-term adherence while aligning with both technical requirements and medical protocols.

- **User Experience Focus:** The SMILE project emphasises enhancing user engagement by creating user-friendly and intuitive applications, making it easier for both clinicians and young users to recognise its benefits.
- **Incentives for Participation:** A rewards system is implemented to motivate users, particularly young people, by acknowledging their achievements in self-reflection and data accuracy.
- **Balancing Engagement and Data Integrity:** Dr. Nasser acknowledges the need to ensure that a focus on rewards does not lead to superficial engagement and stresses the importance of maintaining the integrity of the data collected.

Human in the loop approach in SMILE

Despite the advantages of automation and AI, several projects underscored the importance of retaining human involvement in the decision-making process. Dr. Nasser highlighted how SMILE integrates professionals into its feedback systems, ensuring that users can always consult healthcare providers when necessary. *“Technology cannot replace the human touch in mental health care, but it can certainly complement and enhance it”* he remarked.

- **Co-Creation with Clinicians:** SMILE solutions are co-created through living labs, emphasising collaboration with healthcare professionals.
- **Assistive Tools:** SMILE digital tools are designed to assist clinicians rather than replace them, enhancing assessment and follow-up processes.
- **Clinician Decision-Making:** Final decisions in treatment processes remain with clinicians, acknowledging that machines cannot be fully trusted.
- **Personalised Workflow Support:** In SMILE, clinicians can trigger specific questionnaires for tailored remote decision-making, supporting informed choices.
- **Integration of Subjective Observations:** The platform allows young users to provide their observations through reflective exercises, enriching the data collected.
- **Empathy in Digital Assistance:** The system incorporates empathy and recommendations, reinforcing the role of human oversight in the process.

Spotlight on the Companion Mobile App

One of the standout features of the SMILE initiative is the **Companion Mobile App** introduced by Dr. Nasser during the webinar. The app is designed to provide learning-based **peer support** for individuals facing mental health challenges. As part of a broader push to integrate personalised digital interventions, the Companion Mobile App not only **monitors user well-being** but also encourages **adherence to healthy routines**, making it a valuable resource for mental health management. Key features of the app include:

- A **peer support feature** where experienced adults (e.g. parents/teachers) can share experiences and skills with young users.
- Thematic discussions that focus on **developing positive thoughts, resilience and flexibility** when facing stress.
- Each peer support room is moderated by a **qualified** individual to ensure safe sharing of experiences. This emphasis on experience sharing promotes **resilience and mental wellbeing** without relying solely on clinical diagnoses.

Dr. Nasser emphasised the app’s focus on enhancing user engagement through **smart algorithms** that tailor recommendations based on individual data, helping users stay aligned with their mental health goals. During the Q&A session, Dr. Nasser also clarified that the app’s human-centric design is essential for ensuring privacy and data security, concerns that were at the heart of the discussions during the event.

Conclusion:

Looking ahead, the potential of AI and digital applications to improve mental health support is promising. The recent joint webinar served as a platform to address the key challenges and opportunities in the realm of digital mental health support. This non-scientific article focused on the lens of the **SMILE Project** shared by Dr. Habib Nasser's insights that highlighted the innovative strides being made in the development of digital solutions aimed at enhancing mental well-being. As the co-founder and CEO of RDIUP, **Dr. Habib Nasser** brought forth a wealth of expertise through his intervention and advocated for the technology's role in this critical field and highlighted RDIUP's dedication to creating user-friendly digital services while ensuring both regulatory, privacy, security, and efficacy elements.

By prioritizing data privacy, user engagement, and a human-centred design philosophy, the SMILE project and its sister projects are poised to create impactful tools that can significantly enhance mental health outcomes. This collaboration across EU-funded initiatives showcased not just the technological advancements, but the collective will to address one of the most pressing health concerns of our time—mental health. Continued research and development in this area are essential for refining these tools and ensuring they meet the diverse needs of users.

As we conclude this exploration, we invite readers to delve deeper into the SMILE Project and the Seven EU-funded initiatives through the **One-Stop-Shop** available in the Annex, and to register to the Mental Health Dialogues Series through the **QR Code** provided in the Annex. By engaging with these resources, you can be part of a movement that aims to revolutionise mental health care for individuals across Europe and beyond.

ANNEX

Stay tuned as these projects continue to collaborate, innovate, and make a lasting impact on mental health support!

a. General Poster



b. Panellists' Poster



c. Dr. Habib Nasser - Individual Panellist Card & Bio

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Habib NASSER
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SMILE

Dr. Nasser is the CEO and co-founder of RDIUP, a leading expert in mechatronics, smart systems, and AI. With a proven track record in driving innovation, he brings extensive experience in Autonomous Machines, AI tools development, and international projects coordination.

Spanning both academia and industry, Dr. Nasser has led numerous research and commercial projects, delivering patents, disruptive concepts, and digital solutions across sectors like Energy, E-Mobility, and Healthcare.

At RDIUP, Dr. Nasser leads a dynamic team dedicated to tackling emerging societal challenges through the development of advanced digital technologies. His commitment to pushing the boundaries of AI and data analytics drives meaningful impact across rapidly evolving industries.

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Webinar Recording: <https://www.youtube.com/watch?v=QYFylt-Z30E&t=25s>

Webinar Report: <https://www.horizonmile.eu/wp-content/uploads/2024/10/Digital-Applications-in-Mental-Health-Support--Webinar-Report.docx>