

BOOK OF ABSTRACTS



THE INTERNATIONAL CONFERENCE ON
**DIGITAL HEALTH AND
TELEMEDICINE** 2023

"ENHANCING HEALTH EQUITY AND IMPROVING PATIENT OUTCOMES: EMPOWERMENT STRATEGIES FOR PATIENTS TO TAKE CONTROL OF THEIR CARE AND WELL-BEING THROUGH DIGITAL HEALTHCARE"

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WELCOME MESSAGE FROM THE CONFERENCE CHAIR - DigiHT 2023

Ladies and Gentlemen,

It is with great pleasure that we extend a warm welcome to you for the inaugural International Conference on Digital Health and Telemedicine 2023 (DigiHT 2023), which will take place in a Virtual Platform. DigiHT 2023 marks our exciting journey into the world of conferences, and we are thrilled to have you as part of this historic event. While this may be our first, we are dedicated to making it memorable and impactful.



The vision behind DigiHT 2023 is to create a platform that unites a diverse range of academics, practitioners, technologists, application developers, students, and industry experts from around the world. We are committed to providing a space for meaningful discussions, networking opportunities, and a forum to share knowledge and expertise.

Our theme for this pioneering conference is “Enhancing Health Equity and Improving Patient Outcomes: Empowerment Strategies for Patients to Take Control of Their Care and Well-being through Digital Healthcare.” It is a theme that resonates with the pressing global challenges, and we are excited to explore it together.

The diversity of topics, the presence of esteemed keynote speakers, engaging workshop leaders, and the wealth of experiences and specializations will enable us to collectively contribute to the field of digital health and telemedicine. DigiHT 2023 aims to foster collaboration, innovation, and the sharing of knowledge that will shape the future of digital health and telemedicine. As we embark on this exciting journey, we invite you to be a part of this groundbreaking event.

We greatly appreciate your support and participation as we launch this conference. We believe it is the first of many successful gatherings to come.

To all our participants, we hope that DigiHT 2023 will be a memorable and enriching experience.

Thank you.

Assoc. Prof. Dr. Afizan Bin Azman

Conference Chair

School of Computer Science Faculty of Innovation & Technology Taylor’s University,
Malaysia

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ORAL PRESENTATIONS

A1

[01]

IMPLEMENTATION STATUS AND USER RESPONSE OF DIGITAL HEALTH INTERVENTIONS AT PRIMARY HEALTHCARE LEVEL: A CROSS-SECTIONAL STUDY

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ABSTRACT

Over the past decade, the government of India has embarked on a digital health journey with the launch of digital health interventions (DHIs) at the primary healthcare level. However, there is limited evidence on the implementation status, user response of healthcare providers (HCPs) on these DHIs, including awareness of DHIs among the general population. Hence, a cross-sectional descriptive study was conducted to assess these in Chandigarh, India. A data extraction form and observation checklist were developed to assess the implementation status of nine DHIs by visiting four primary healthcare centres. To explore the awareness and user response 120 target-end-users/general population and 120 HCPs were enrolled in the study and interviewed using two separate questionnaires. The results were analyzed using input, process and output indicators of a logic model. Descriptive statistics and Chi-square test was used for analysis. RCH portal and eVIN were effectively implemented, eSanjeevani fairly implemented, while HMIS, HWC portal, CPHC, and FP_LIMS were poorly implemented. There was low awareness of DHIs (range 1% to 22%) except for Arogya Setu (78.3%) and the CoWin app (35.8%) in the community. Awareness level was significantly associated with socio-economic status. DHIs were reported to be 'easy to work on' by 66% HCPs, that 'dual data entry has increased the workload' by 88%, and 'technical glitches in ANMOL app' by 97%. Overall implementation status of DHIs was inadequate, user response of HCPs varied for DHIs despite having similar digital ecosystems. There was low demand in the community for DHIs. Further study is needed to explore the relationship between data quality, capacity building, and DHIs usability by healthcare providers.

Keywords: digital health interventions, primary healthcare, implementation status, awareness, India

A2

[02]

STOBALAB: LABORATORY MATERIAL STOCK INVENTORY MANAGEMENT APPLICATION

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ABSTRACT

Laboratory facilities are integral parts of health care and assist the provision of quality health services through reliable diagnosis and monitoring of medical outcomes. Laboratories need proper material stock inventory management. Inefficient stock management can lead to wastage, overstocking, or expired materials, resulting in financial losses. Therefore, the researcher makes an innovation of application as a laboratory stock inventory management media, namely StobaLab. The StobaLab is the result of an mobile application design that can be used by laboratory professionals which aims to simplify the process of controlling the inventory of material stocks by integrating a barcode that can be attached to the packaging of laboratory materials as a stock record of the material or reagent. The application offers comprehensive features such as automatic tracking, real-time visibility, a centralized database, order management, expiration date tracking, also analysis and reporting features. By applying this technology, laboratories can increase efficiency, reduce costs, minimize errors, and ensure that the right material is available at the right time. The method used was a research and development study with the one-group pretest-posttest design that is transfer students of Medical Laboratory Technology of Poltekkes Kemenkes Yogyakarta. The result of the Wilcoxon test show that Z count is -4.990 and sig of 0.00 is less than 0.05, so it can be concluded that the StobaLab application is effective to increase of accuracy of stock measurements, ease of recording, and ease of reading compared to other conventional methods. Finally, this application is beneficial to support the 3rd SDGs goals, having good health and well-being through providing health technology, particularly in the management system of laboratory inventory toward the accurate and timely medical diagnoses.

Keywords: laboratory stock, inventory, management, application, technology

A3

[03]

**AUTOMATIC TUBERCULOSIS STAIN MODEL BASED BY ZIEHL-NEELENSEN
METHOD TO MAXIMALIZE THE SENSITIVITY OF ACID FAST BAACILLI
EXAMINATION**

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ABSTRACT

Tuberculosis (TB) is an infectious disease caused by Mycobacterium tuberculosis bacteria. According to the World Health Organization (WHO) Global TB Report 2020, ten million people in the world suffer from TB which causes 1.2 million deaths every year. WHO recommends that the diagnosis of TB must be carried out quickly and precisely based on the examination of Acid-Fast Bacilli (AFB). In reality, not all Medical Laboratory Professionals (MLPs) have the same competence in the examination of AFB using the Ziehl Neelsen (ZN) method. The reason is that there is still no certification that leads to the ZN method. To participate in TB control in Indonesia, according to the direction of the President of the Republic of Indonesia through Presidential Decree No. 67 In 2021, researchers made the Automatic Tuberculosis Stain Model Based on Ziehl-Neelsen Method to Maximize the Sensitivity of Acid Fast Bacilli Examination (ATS-ZN). ATS-ZN is made by applying the concept of robotics to replace the conventional method in the ZN method of AFB examination and minimize direct contact between laboratory staff and specimens. This tool has been tested according to American Institute of Steel Construction (AISC) standards. The results obtained are von misses stress of 0.00000000236616 MPa, displacement at 0.00 mm with an allowable span of 2.421 mm and a safety factor value obtained is 15. These results show that the value is more than Poisson's ratio which is 0.38. So, this tool passed the safety factor test by AISC standards. From the tests that have been carried out, an ATS-ZN prototype that works well is made and ready for the product downstream by cooperating with third parties.

Keyword: TB, Ziehl Neelsen, Robotics, AFB Test

A4

[04]

STUNTINGMETER: A PORTABLE DIGITAL ULTRASONIC DEVICE FOR CHILD HEIGHT MEASUREMENT AND STUNTING DETECTION

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ABSTRACT

Stunting is a public health issue globally. The acceleration of stunting reduction through primary healthcare transformations has been a national agenda in Indonesia. This research and development aims to develop a digital height measurement and stunting detection tool which is fast, accurate, and practical. There were five stage development: literature review, tool development and analysis using Force Field Analysis (FFA), tool accuracy test, user acceptability test, and downstream analysis. For FFA analysis, we involved 12 experts from different health professionals, frontline health workers, and early education teachers. Test and re-test were conducted with 50 children under fives in integrated health service posts. We included 43 people for user acceptability test using the Diffusion of Innovations Theory with the following aspects: relative advantage, compatibility, complexity, triability, and observability. We tested data accuracy using t-test and user acceptability using the mean of each aspect and aggregate, with the cut-off of 80. All of these analyses were done using STATA. Our study resulted in a well-developed digital ultrasonic device “Stuntingmeter” for child height measurement in centimeter, height-for-age Z-score, and stunting status detection. Our literature review found that “Stuntingmeter” met high novelty aspect. The FFA analysis found positive stakeholder and user perceptions encouraged the innovation of the device. Field scale measurement test showed accuracy or no significant different with the gold standard ($p < 0.05$), output reading in 4 seconds, high user acceptability (> 85), and a potency for research downstreaming to support health transformations. This tool has been registered for a patent in Indonesia (number: S00202306944). Thus, there is an urgent need for business matching and government advocacy (e.g., Ministry of Health) to enhance healthcare service to reduce stunting.

Keywords: stunting, digital tool, measurement, detection, ultrasound sensor

B1

[05]

**THE EFFECT OF STORYTELLING ON THE LEVEL OF KNOWLEDGE ABOUT
FRUITS AND VEGETABLES IN GRADE 4 AND 5 CHILDREN AT SD NEGERI
BATURAN 1 YOGYAKARTA**

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ABSTRACT

Fruits and vegetables have many benefits, especially for the growth and development of children but many children lack fruit and vegetable consumption. Lack of fruits and vegetables will result in various diseases such as malnutrition, obesity and other diseases, one of the efforts that can be made to overcome the low consumption of fruits and vegetables is to expand children's knowledge through health education. Storytelling is a unique way and gives a pleasant impression on children. Knowing the Influence of Storytelling on the Level of Knowledge About Fruits and Vegetables in Grade 4 and 5 Children at SD Negeri Baturan1 Yogyakarta. This study uses Quasi Experimental Design using Nonequivalent Control Group Design. Sampling used total sampling with 51 respondents each in the experimental and control groups. The instrument used is a questionnaire about fruits and vegetables. The tests used were Wilcoxon and Mann-Whitney. The level of knowledge of respondents before being given storytelling was mostly in the sufficient category of 56.9% and after being given storytelling increased with most being in the good category of 76.5%. The provision of the storytelling method has an influence on the level of knowledge evidenced by the difference in significance between the experimental and control groups with a p-Value of 0.000 then a p-Value value of <0.05. The storytelling method has an influence on the level of knowledge of grade 4 and 5 elementary school children about fruits and vegetables

Keywords: fruits and vegetables, elementary school children, knowledge level, storytelling

B2

[06]

**THE USE OF INSTAGRAM HIGHLIGHT FEATURE AS A MEDIA FOR
COUNSELING IN PREVENTING THE RISK OF HAZARDS FROM SAFETY SIGNS
IN MANUFACTURING INDUSTRY EMPLOYEES**

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ABSTRACT

Cases of work accidents in Indonesia in the last 5 years have continued to increase, in 2017 there were 123,040 cases. In 2018 it increased 40.94% to 173,415 cases, in 2019 it increased 5.43% to 182,835 cases, in 2020 it increased 21.28% to 221,740 cases, in 2021 it increased 5.65% to 234,270 cases, and in 2022 it still increased by 13.26% to 298,137 cases. Safety signs are important in the workplace to prevent work accidents for industrial employees. Research using various digital media has been done, but some of them still leave obstacles. Research using the digital technology medium Instagram highlight feature as an extension medium was conducted to complement previous studies. This research aims to increase knowledge and attitudes about the dangers of ignoring safety signs. The study with a quasi-experiment Pre-test a post-test with a control group design was conducted in July 2023 on 42 manufacturing industry employees in Purworejo, Central Java, Indonesia. The counseling intervention used the Instagram Highlight feature @kesling_awareness.id, which was accessed by 21 employees through a link from a smartphone by the experimental group and 21 employees were not given the intervention as a control. The employees were grouped purposefully. Knowledge and attitudes were measured using tests. The data obtained were analyzed using Mann-Whitney with a level of significance of 0.05. The results showed an increase in knowledge in the experimental group of 31.90 points (59%), while the control group had an increase of 11.10 points (4%). The results of the analysis showed that there was a significant difference (p value 0.000). The increase in attitude in the experimental group amounted to 32.00 points (60%), and the increase in attitude in the control group amounted to 11.00 points (5%). The results of the analysis showed that there was a significant difference (p value 0.000). The conclusion is that counseling using digital media features, such as Highlight Instagram @kesling_awareness.id, can be used to increase the knowledge and attitude of industrial employees in preventing accidents due to neglect of safety signs.

Keywords: Instagram highlight feature, safety sign, accident, employee, industry

B3

[07]

**IMPLEMENTATION OF TELEREHABILITATION SERVICES IN A LOCAL
COMMUNITY IN CAVITE: A QUALITATIVE CASE STUDY**

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ABSTRACT

The COVID-19 pandemic remarkably affects the world's healthcare system. The healthcare service access and delivery system were affected worldwide. In the Philippines, hospitals nationwide defer non-urgent consults and rehabilitation services because of panic, fear, and anxiety about contracting the virus. Telerehabilitation services were implemented to meet the rehabilitation services gaps brought about by the pandemic in the community. This qualitative case study evaluates the implementation of Telerehabilitation services in a local community in the Philippines. A qualitative case study method was used as it utilized secondary data from audiovisual recordings, documents, and observations from Telerehabilitation sessions from Aug 2020 – May 2021. A qualitative research design involves exploring and providing insights into the problems experienced by an individual or organization. Thematic analysis identified four emerging themes regarding challenges experienced in the program implementation, namely, the technological factors, patient factors, approach and strategies, and infrastructure. At the same time, the lessons learned from the case study can be summed up into two themes: the value of partnership and bridging the gap. From the findings, a sustainable, effective, and safe digital physical therapy program can be established using the resources of both public and private organizations as its strength. This study can guide other local communities to establish a Telerehabilitation program to increase access to rehabilitation services using Public-Private Partnerships.

Keywords: Telerehabilitation, ehealth, physical therapy, patient experience

B4

[08]

MISSION I'M POSSIBLE TO IMPROVING AWARENESS ON EARLY AGE MARRIAGE AND SEXUAL HARASSMENT THROUGH CRUSH: A COMMUNITY EMPOWERMENT PROJECT

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ABSTRACT

Around 35.6% of women in the world including the first author have experienced sexual harassment. Criticizing Early Age Marriage, Its Effects, and Sexual Harassment (CRUSH) is a project activity from the Standing Committee on Sexual & Reproductive Health and Rights including HIV & AIDS (SCORA) and the Standing Committee on Human Rights and Peace (SCORP) Center for Indonesian Medical Students' Activities Universitas Jenderal Soedirman (CIMSA Unsoed) to celebrate International Women's Day. Our project aims to improve the understanding of early-age marriage and sexual harassment among different community members of the Banyumas region. The CRUSH project encompassed different activities including pre-activity training, ground campaign, air campaign, school roadshow, village talk show, and extended training. Pre-activity training was delivered on March 12th, 2023 by the first author as a Human Rights Education Facilitator of SCORP CIMSA Unsoed. The extended training was delivered to online and offline audiences using hybrid methods. Evaluation of the project was done by comparing the pre-test and post-test average scores. The pre-activity training was attended by 22 audiences of medical students. There was an increase in the average pre-test to post-test scores from 4.00 to 4.89 of 5.00. The extended training was attended by 4 offline audiences representing parents and children, as well as 30 live Instagram viewers. There is an increase in the average pre-test to post-test scores from 3.50 to 4.50 of 5.00. Both of the trainings had shown an increase in participants' awareness about sexual harassment and early-age marriage. The authors hope that becoming peer educators will decrease the prevalence of sexual harassment and early-age marriage.

Keywords: sexual harassment, early-age marriage, community empowerment

B5

[09]

UNVEILING SUICIDE IDEATION DETECTION IN SOCIAL MEDIA: LEVERAGING TRANSFORMER MODELS FOR ENHANCED INSIGHTS

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ABSTRACT

Mental health issues such as depression, frustration, and hopelessness can directly or indirectly influence the emergence of suicidal thoughts. Early identification of these thoughts is crucial for timely diagnosis and intervention. In recent years Large Language Models (LLMs), such as Transformers, have emerged as powerful tools capable of processing and generating human-like text. These AI models can offer personalized mental health education to help individuals with their unique needs and concerns on a large scale, unlike ever before. In this study, we've created algorithms based on LLMs to accomplish two key objectives in supporting healthcare professionals: 1) Early Symptom Detection and Continuous Monitoring and 2) Personalized Recommendations. We obtained annotated posts from Reddit subreddits dedicated to mental health from previous studies through IRB agreement. After merging all datasets, we selected 48,267 posts with four categories depression/suicide watch, anxiety, bipolar disorder, and normal posts. We developed a custom model called PsychBERT by fine-tuning the pre-trained ALBERT large language model. We incorporated the search and retrieval-augmented generation (RAG) concept to help doctors and other medical professionals access the latest medical literature and clinical guidelines to assist in diagnosis and treatment recommendations. PsychBert demonstrated superior performance in detecting depression and suicide-related posts (AUC= .85) compared to GPT-3.5 (AUC=.82). Similar favorable outcomes were observed in the detection of anxiety (AUC=.84, AUC=.80), normal text (AUC: .87, AUC=.71), and bipolar disorder (AUC=.84, AUC= .70). Moreover, we noted a low rate of inconclusiveness in customized diagnosis recommendations and identifying specific causes of depression when tested across a range of examples. By leveraging transformer models, the automated detection of suicidal ideation in social media can be significantly advanced, leading to enhanced mental health support on online platforms.

Keywords: suicidal ideation, transformer model, large language models, social media

C1

[10]

IDENTIFYING KEY OPPORTUNITIES IN IMMUNOTHERAPY PATHWAYS FOR DIGITAL INTERVENTION: A QUALITATIVE STUDY

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ABSTRACT

Immunotherapy has emerged as a new standard of care, headlining survival benefits in multiple disease sites. Immune related adverse events (irAEs) are unpredictable in severity, progression and time of onset. Rising indications combined with lengthy treatments are increasing pressures on already strained cancer services, highlighting a need for novel methods to refine the delivery and management of immunotherapy. Digital health tools may facilitate remote monitoring of patients and their symptoms via electronic patient-reported outcomes (ePROs) and deliver targeted patient education. Research has shown that successful and sustainable deployment of digital tools requires engagement from stakeholders to ensure it fits within clinical pathways. We carried out a qualitative study to identify key pain points in the immunotherapy care pathway where a digital tool may play a role. Remote semi-structured interviews were conducted with immunotherapy patients (n=3), oncologists (n=4) and clinical nurse specialists (n=2) across 3 NHS Trusts in the UK. Each interview lasted 35 minutes on average. We identified 5 key opportunities for digital within the immunotherapy pathway: 1) Systematic reporting of toxicity data between appointments enables early intervention and focused conversations on symptom management; 2) Remote monitoring of stable patients through ePRO data reduces need for face-to-face appointments and lengthy telephone conversations; 3) Patient self-management of steroids following irAEs enables monitoring and tapering by clinical teams; 4) Delivery of irAE-related support information for patients allows for timely signposting of information; 5) Combined patient+caregiver access supports caregivers in managing patient's cancer journey. Through our study, it is evident there is a role for digital tools, such as the Vinehealth digital oncology platform, to refine the immunotherapy pathway, alleviate pressures on the service and enhance patient self-management.

Keywords: oncology, immunotherapy, patient-reported outcomes, digital health

C2

[11]

**AI-BASED DIGITAL HEALTHCARE APPLICATION TO MANAGE FALL RISKS
IN RESIDENTS OF NURSING HOMES IN GERMANY: CLINICAL AND
RESIDENT-REPORTED OUTCOMES**

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ABSTRACT

Falls in older people cause an autonomy loss and result in an economic burden. LCare is an AI-based application to manage fall risks. The study aim was to assess LCare use impact on patient outcomes, in nursing homes in Germany. LCare identifies and monitors fall risks through a 3D-gait analysis, complemented with a digital questionnaire; it provides tailored recommendations on fall prevention. A real-life study was conducted with AOK Baden-Württemberg in 16 care facilities. Assessments at baseline and follow-up included: a fall risk score; falls (baseline: fall history in the past 12 months; follow-up: a fall record since the last analysis); fall-related injuries and hospitalizations; gait speed; fear of falling; psychological stress; nurses experience on app use. 94 seniors were aged 65-99 years at the initial analysis (average 84±7 years); 566 mobility analyses were carried out in total. On average, there was 17.8 % reduction in fall risk from baseline ($p<0.05$). The risk of falling decreased across all subgroups, including a trend in dementia patients ($p=0.06$), constituting 43% of analyzed patients, and patients with walking aids ($p<0.05$), constituting 76% of analyzed patients. There was a trend ($p<0.1$) towards fewer falls and fall-related injuries and hospitalizations. There was a 16% improvement in gait speed ($p<0.05$). Residents reported less of fear of falling and psychological stress, by 38% on both outcomes ($p<0.05$). 81% of nurses found LCare app effective. In the presented study, use of LCare app was associated with a reduction of fall risk among nursing home residents, improvement of health-related outcomes, and a trend towards reduction in injuries and hospitalizations. LCare may help to improve senior resident care.

Keywords: fall risk, AI, healthcare, application, residents, nursing home

D1

[12]

ENHANCING CAMPUS HEALTH SERVICES IN DEVELOPING COUNTRIES: A STUDY ON AI-POWERED PERSONALIZED HEALTHCARE MANAGEMENT

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ABSTRACT

This study underscores the urgent need to enhance campus health services in developing countries, specifically Bangladesh, where primary healthcare access and data management lag behind. In Bangladesh, the youth represent the largest demographic and are enrolled in educational institutions, improving campus health practices can be instrumental in achieving broader health goals. The World Health Organization (WHO) emphasizes that by expanding primary healthcare interventions, 60 million lives could be saved, and life expectancy increased by 3.7 years by 2030. Surveying 94 Bangladeshi university students, 74.47% had not undergone health check-ups, with 25% of those with annual family incomes under \$3,500 dedicating a significant portion to healthcare expenses. Among those without check-ups, 68.09% reported family members suffering from diabetes, 34.04% with cardiovascular disease, 31.91% with chronic respiratory diseases, and 8.515% with cancer. Regular health check-ups and data management can prevent diseases, reduce costs, and prevent medical errors. The study introduces the Smart Health Gantt Chart (SHGC), an AI-powered system designed to collect, store, and analyze past medical history and predict future health based on past records. Testing SHGC with 15 students revealed significant interest, with 93.3% expressing a desire to utilize it. Motivations for adopting SHGC include "Precise data management" (53.3%) for rapid medical history reviews, "Enhanced decision-making about health" (53.3%), "Improved communication with healthcare professionals" (46.7%), and "Reduced medical errors" (46.7%). Concerns include data privacy (66.7%), technical issues (53.3%), trust in predictions (53.3%), system understanding (40%), cultural factors (13.3%), and cost (13.3%). Future studies aim to address these. In conclusion, this study highlights the pressing need for user-friendly systems like SHGC to enhance preventive healthcare management among students and confront healthcare challenges in developing countries.

Keywords: digital health, electronic health record, SDG3

D2

[13]

**THE EFFECT OF DIGITAL COMIC MEDIA WASHING HANDS ON
KNOWLEDGE AND ATTITUDE IN PREVENTION OF DIARRHEA IN CHILDREN
ELEMENTARY SCHOOL AT SD N 1 WONOREJO**

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ABSTRACT

Diarrheal disease in school children is obtained from a pattern of clean and healthy living habits that are lacking, one of which is the habit of washing hands. Therefore, elementary school-aged children need to receive health education, especially in doing proper and proper hand washing. The health education media used in this study is digital comics. To determine the effect of digital comic media on clean hand washing on knowledge and attitudes in preventing diarrhea in elementary school children at SD N 1 Wonorejo. This research is a Pre-Experimental Design with a One Group Pretest Posttest Design. This research was conducted in March 2023. The population for this preliminary study were students in grades 3, 4 and 5 of SD N 1 Wonorejo. Sample with a total of 37 students. Data analysis used the Wilcoxon and McNemar tests. There was a significant effect before and after being given the intervention with digital comic media on knowledge (p value = 0.000). There was no significant effect before and after being given the intervention with digital comic media on attitudes (p value = 0.508). There is an effect of the digital comic media washing clean handson knowledge in preventing diarrhea in elementary school children at SD N 1 Wonorejo. There is no effect of digital comic media washing hands clean on attitudes in preventing diarrhea in elementary school children at SD N 1 Wonorejo.

Keywords: digital comic media, knowledge, attitude, hand washing, diarrhea

D3

[14]

**APPLYING A BUILDING BLOCKS MODEL TO TELEHEALTH CLINIC
IMPLEMENTATION IN THE PHILIPPINES: A LARGE-SCALE TELEHEALTH
PILOT PROJECT**

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ABSTRACT

Many areas in the Philippines have limited health care access. We tested a pilot, low-cost telehealth solution that aligns with the U.N. SDG #3 goal in the Manila region that could scale nationwide. In collaboration with local authorities, our digital health clinic was implemented in Manila between 4-6 January 2023. Patients were collaboratively seen by a local Filipino physician and a remote United States-based licensed physician who provided recommendations for treatment. The telehealth platform included multiple real-time examination devices, including stethoscopes, otoscopes, and ultrasound to enhance the remote exam. We surveyed the patients. Amongst the 322 patients seen, 217 completed the population health survey. Of these 217, 157 (72.4%) were female, 79 (36.4%) were high school graduates, and 103 (47.5%) were unemployed. The most common diagnostic category seen at the VSee telehealth clinic was respiratory (43.3%) and neurologic complaints (9.7%). A large proportion of patients had a doctor visit more than 12 months ago (39.2%) and did not get a dental examination (83.9%) or an eye examination within the past year (82.5%). Most patients had access to a smartphone (67.7%). A lower proportion had access to an internet connection sufficient for video calls (57.1%) or a laptop (8.3%). The median time to travel to the VSee Clinic was 5 minutes (IQR: 3-15), and the majority of the patients walked to the clinic (84.8%). A small proportion of patients lost daily wages due to their clinic visit (23.0%). The VSee Clinic demonstrated that telehealth is a feasible solution to improve access to health care for disadvantaged communities in the Philippines. Further steps need to be taken to equip the local population to manage telehealth clinics independently.

Key words: telehealth, universal health care, Southeast Asia

E1

[15]

**UTILIZATION OF FLAVONOIDS FROM VEGETABLES AND FRUITS AS
IMMUNE SYSTEM ENHANCERS DURING A PANDEMIC IN PANIKI VILLAGE,
MAPANGET DISTRICT, MANADO CITY**

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ABSTRACT

Along with the end of the COVID-19 pandemic, various problems have emerged, with health being a sector that requires more attention for recovery. People believe that consuming immune system enhancing supplements can help maintain health, but the issue of affordability poses another challenge for them. Maintaining a strong immune system can be achieved in a simple and cost-effective way, namely by incorporating vegetables and fruits into the diet. These natural foods contain nutrients that have the potentio to act as antioxidants, anti-inflammatories, and detoxifiers. The benefits of antioxidants are believed to enhance and sustain the immune system, particularly during pandemic. Flavonoids, which are found abundantly in fruits and vegetables, can be extracted by soaking them in suitable solvents. Flavonoids are soluble in polar and semipolar solvents, including water. Community education on the utilization of flavonoids was conducted in Paniki Village, Mapanget District, using direct learning and simulation methods. The target audience consisted of productive individuals aged 20-40 years and teenagers. The evaluation, has been held through direct interviews 5 days after the activity, revealed an increased knowledge among the participants regarding the utilization of vegetables and fruits, as well as an improved understanding of the processing methods to optimize the nutritional benefits they provide. Based on these findings, it can be concluded that direct learning dan simulation activities effectively enhance the knowledge of flavonoids utilization from vegetables and fruits among the productive age residents and adolescents in Paniki Village.

Keywords: flavonoids, immune system, community education

E2

[16]

**ICARE APPLICATION AS A MEDIA FOR PROMOTION OF DENTAL CARE
PREVENTION IN AN EFFORT TO REALIZE THE SUSTAINABLE
DEVELOPMENT GOALS OF THE SOCIETY ERA 5.0**

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ABSTRACT

Dental and oral health is very important in everyday life. If dental health is not maintained, it can cause disease that can damage the layers of teeth, namely dental caries. Dental caries is a disease that permanently damages the layers of the teeth and forms small holes in the teeth. The results of Basic Health Research (2018) state that the largest proportion of dental problems in Indonesia are cavities (45.3%) with the majority being swollen gums with abscesses (14%). Dental caries is a chronic infectious disease that commonly occurs in the hard tissue of teeth. Dental caries and its complications can exacerbate or induce systemic disease. The aim of this research is to provide education through an Android application as an effort to improve the quality of health. The method used in this research is the Research and Development method, namely producing new products and improving existing products. The study results show that several products have been produced and need further development, especially in the use of health promotion applications. This research is expected to provide guidelines for health promotion applications in the field of dental health

Keywords: application, caries, dental health, promotive

E3

[17]

**THE UTILIZATION OF ARTIFICIAL INTELLIGENCE FOR PUBLIC HEALTH
SURVEILLANCE OF NONCOMMUNICABLE DISEASES: A NARRATIVE
LITERATURE REVIEW**

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ABSTRACT

Digitalization of health systems represents an opportunity for strengthening public health surveillance through artificial intelligence (AI). Noncommunicable diseases (NCD) are the most prevalent globally and constitute a major challenge for public health. The aim of this study is to analyze the use of artificial intelligence for epidemiological monitoring of noncommunicable diseases. We conducted a narrative literature review of PubMed, Google Scholar, Scopus and the Virtual Health Library databases published from 2018 to 2023. The initial search showed 463 articles. Of those, 22 (4,75%) referred to epidemiological monitoring, artificial intelligence and noncommunicable diseases. Finally, 11 (2,4%) were eligible for inclusion. These articles were produced in five countries, namely the United States of America, Canada, France, United Kingdom and Lebanon. Noncommunicable diseases surveyed were obesity, cirrhosis, diabetes, hypertension, chronic kidney disease and depression. Three of them discussed utilization of AI for predicting NCD, four were focused on the design of public policies, three for improving public health surveillance and one for deployment of new data sources. To conclude, there is an emerging interaction between AI and public health surveillance for NCD, showing that there is a significant potential in the application of AI for public health. This research contributes to the strengthening of epidemiological monitoring through the utilization of AI for the design and implementation of public health policies.

Keywords: artificial intelligence, epidemiological monitoring, public health surveillance, noncommunicable diseases

**POSTER
PRESENTATION**

P1

[18]

**ENHANCING PARENT ENGAGEMENT IN EARLY CHILDHOOD
DEVELOPMENTAL MONITORING: A CRITICAL EVALUATION OF WEB-
BASED RESOURCES IN NEW JERSEY, USA**

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ABSTRACT

Parent-engaged monitoring of developmental concerns in early childhood is a process in which parents observe their child's development in collaboration with their healthcare providers to ensure the most accurate and timely access to treatment if needed. Research indicates that caregivers use web-based information to aid decision-making about their children's health and development. In the United States, the state of New Jersey has invested in web-based early childhood initiatives to promote parent-engaged developmental monitoring specific to the State's resources due to the continuously rising prevalence of developmental delays compared to the rest of the country. However, the quality of those resources is unknown. This study mapped and evaluated the quality, readability, and accessibility of New Jersey's commonly used web-based information on parent-engaged developmental monitoring in children aged 0-3. Six keywords were entered into Google, Yahoo, Bing, and Duck Duck Go search engines, yielding 112 results. Thirty-six web pages met inclusion criteria and were reviewed by three independent reviewers using four standardized assessment tools. Only three (8%) websites met "good" quality standards according to the Quality Checklist, and 10 (28%) according to the DISCERN. Most information was written at a 12th-grade reading level, indicating that caregivers may struggle to comprehend the content. None of the websites reviewed met the criteria for "high accessibility" according to LIDA standards. The findings of this study indicate that caregivers in New Jersey may lack access to high-quality, understandable information on developmental monitoring and treatment of developmental concerns, negatively impacting timely access to state resources. Therefore, there is a need for comprehensive and collaborative website development to meet caregivers' needs and capabilities.

Keywords: developmental delay, developmental monitoring, early identification, early intervention; e-health

P2

[19]

TEACHING COPYRIGHT FOR FINE ARTS AND DESIGN STUDENTS IN THE AGE OF 4.0 – THE CASE OF VIETNAM

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ABSTRACT

Art and design in the era of Industry 4.0 must adapt and evolve to keep pace with the latest trends. Consequently, it is inevitable that works of art, as well as products of illustration, advertising, 2D and 3D graphics, will be created using artificial intelligence (AI). This paper aims to shed light on this phenomenon and provide guidance on introducing copyright laws for works created by students using AI. Additionally, it outlines the rights, responsibilities, and obligations of these students with regard to their works. The study utilizes various research methods, including survey methods, comparative analysis, and SWOT analysis. The results indicate the need for teaching methods and copyright provisions for artworks created by AI. These can be applied in art and design schools, and also propose additional laws for the government of Vietnam. By introducing copyright laws for works created by students using AI, we can protect their intellectual property rights while promoting creativity and innovation in the field of art and design. This study serves as a useful guide for art and design schools to adopt such provisions and also urges the government to consider implementing relevant laws to protect the rights of creators and promote the development of AI-generated art.

Keywords: ai art generator, ai painting art, artificial intelligence, art copyright law, art of the 4.0 era, modern visual art