Hybrid training to improve healthcare providers' knowledge and attitude toward disease management in the primary care setting during Covid-19 pandemic.

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Background: Hybrid training has been selected as alternative strategies in disease management during Coronavirus-19 pandemic applied in the primary care setting.

Purpose: This study aims to explore the healthcare providers' knowledge and attitudes who participated in the hybrid training between onsite and online learning methods.

Method: A cross-sectional study was conducted between onsite conference and online via iCloud Zoom during 3 three-day conferences at the same time. Before and after participating in the conference knowledge and attitude related to disease management in the primary care setting were measured via validated online questionnaire. The analysis was applied by t-test the before and after conference participation.

Results: A total of 400 healthcare providers were included in the hybrid training: 280 participants from online conferences and 220 participants participated in onsite conferences. After participation, knowledge and attitude was significantly higher in the training course from both platforms. There were no significant differences between the group of online and onsite conferences (p=0.087). The normalized-gain scores of all aspects were higher than before by paired t-test analysis (p=0.021).

Conclusion: Hybrid training cloud be considered as a better alternative method to refresh the knowledge toward disease management especially the distant and the pandemic situation in the future healthcare.

USING ARTIFICIAL INTELLIGENCE TO GENERATE SYNTHETIC IMAGES TO REPLACE ORGAN PHOTOGRAPHS ON REAL HUMAN FACES FOR FACIAL ANALYSIS APPLICATIONS

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The objective of this research is to establish a database of facial organ images, including eyes, nose, and mouth, using object detection methods for future applications in medical data collection for patients with facial-related issues. Two types of artificial intelligence software, Midjourney and Stylegan2-ADA-Pytorch, were employed to generate synthetic images of human eyes, nose, and mouth. The study found that synthetic images of human eyes, nose, and mouth with varying characteristics could be generated, comprising 459, 483, and 462 images, respectively. Subsequently, these images were used to create training templates for object detection using YOLOv5. The next stage of the research involved testing the detection of eyes, nose, and mouth from a dataset of 3,161 artificial facial images prepared in advance from https://generated.photos/. The results revealed that the detection of eyes from facial images had an accuracy, precision, and recall of 98.58%. The detection of the nose from facial images had an accuracy and recall of 85.60% and a precision of 100%, respectively. Similarly, the detection of the mouth from facial images had an accuracy and recall of 85.08% and a precision of 100%, respectively.

GENERALIZED LINEAR MODELS AND DOUBLE GENERALIZED LINEAR MODELS IN THE MODELING OF HEALTH BIOLOGICAL SIGNAL DATA

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This study delves into the analysis of health biological signal data, with the aim of supporting healthcare professionals in disease research and treatment planning. By utilizing generalized linear models (GLMs) and double generalized linear models (DGLMs), alongside artificial intelligence applications, this research capitalizes on the potential of these tools. The dataset used for this investigation is sourced from bio-signals, specifically obtained from the National Health Insurance Service_Health Checkup Information (Korea), accessible at https://www.data.go.kr/data/15007122/fileData.do. It comprises 24 variables and 403,415 records. The research protocol initiates with the evaluation of variable correlations and proceeds to develop the models. Subsequently, considering four distributions: normal, gamma, inverse-Gaussian, and Tweedie distributions, the performance of these models is assessed using mean square error (MAE), mean square percentage error (MAPE), root mean square error (RMSE), and the distance between indices of simulation and observation (DISO) for ratios of the number of the training and test datasets?80:20, 75:25, and 70:30. Both GLM and DGLM using normal distribution of the dataset ratio 80:20 exhibit the best performance with slightly different evaluation values. The model by GLM has MAE=0.1414865, MAPE=0.1740542, RMSE=0.2737512, and DISO=0.6660373, whereas the model by DGLM has MAE=0.1396001, MAPE=0.1710685, RMSE=0.27403, and DISO=0.6671767.