

Interconnections of Health Domains: A Meta-analysis of Diverse Research Studies

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Abstract:

This meta-analysis aims to explore the intricate interconnections between various health domains by synthesizing findings from a wide range of research studies. The selected studies encompassed topics such as cardiovascular health, infectious diseases, immune function, pregnancy outcomes, cancer, and data science. By analyzing the relationships and associations between these domains, this study sheds light on the integrated nature of health and emphasizes the need for a comprehensive and multidisciplinary approach to healthcare. The findings of this meta-analysis reveal significant connections between different health areas. The impact of COVID-19 on cardiovascular health and hematological changes among patients with COVID-19 highlights the intersection of infectious diseases and cardiovascular well-being. Moreover, the role of inflammation and oxidative pathways in atherosclerosis underscores the connection between dyslipidemia, inflammatory processes, and cardiovascular health. Pregnancy outcomes, cancer progression, and the influence of data science in healthcare further emphasize the interconnectedness of diverse health domains. Understanding these interconnections is crucial for healthcare professionals in developing holistic approaches to patient care. By considering the interplay between cardiovascular health, infectious diseases, immune function, pregnancy outcomes, cancer, and data science, healthcare providers can enhance diagnosis, treatment, and preventive strategies. This meta-analysis serves as a valuable resource for researchers, clinicians, and policymakers to gain insights into the complex interactions among different health domains and promote integrated healthcare practices. Further research in this area is warranted to unravel the underlying mechanisms and explore additional interconnections between health domains. By advancing our knowledge of these interrelationships, we can improve healthcare delivery, optimize patient outcomes, and foster a comprehensive understanding of human health.

Keywords: Health domains, interconnections, meta-analysis, diverse research studies.

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Introduction:

The ongoing advancements in medical research and technology have opened new possibilities for understanding various diseases and improving healthcare outcomes. In particular, the integration of machine learning techniques into medical research has proven to be a valuable tool for analyzing large-scale data and extracting meaningful insights. This study aims to utilize machine learning analysis to investigate various research topics and explore their implications in the field of healthcare. The research will draw

on a comprehensive review of relevant literature, encompassing a diverse range of studies.

The first study (1) examines the effects of castration and goserelin acetate on myocardial ischemia reperfusion injury and apoptosis in male rats. Another study (2) focuses on hematological changes among Corona virus-19 patients, presenting a longitudinal study that sheds light on the impact of the virus on blood parameters. Another study (3) investigates the role of NF- κ B and oxidative pathways in atherosclerosis, specifically examining the cross-talk between dyslipidemia and candesartan.

A study (4) reports on the presence of extended spectrum beta-lactamase producing *Klebsiella pneumonia* isolated from patients with urinary tract infections. Another study (5) conducts a phylogenetic characterization of *Listeria monocytogenes* isolated from various sources in Iraq, contributing to the understanding of this pathogenic bacterium. Another study (6) explores the association between subclinical hypothyroidism and preeclampsia, providing insights into the potential link between these conditions.

Another study (7) investigates the impact of anesthesia on maternal and neonatal health during Cesarean section, presenting findings that shed light on the influence of anesthesia type on patient outcomes. Another study (8) explores the potential role of cytomegalovirus as a risk factor for breast cancer, adding to the existing knowledge in the field. Another study (9) demonstrates a shorter survival rate in cervical cancer associated with high expression of Notch-1.

A study (10) examines the correlation between highly sensitive C-reactive protein levels in cases of preeclampsia with or without intrauterine-growth restriction, contributing to the understanding of this hypertensive disorder during pregnancy. Another study (11) conducts a phylogenetic characterization of *Staphylococcus aureus* isolated from women with breast abscesses in Al-Qadisiyah Governorate, Iraq.

In another investigation, a study (12) examines the effect of caffeic acid on doxorubicin-induced cardiotoxicity in rats, aiming to uncover potential protective mechanisms. Another study (13) assesses the sensitivity of *Proteus mirabilis* isolated from urinary tract infections. Another study (14) evaluates the ameliorative effects of irbesartan on inflammatory responses and apoptosis induced by myocardial ischemia/reperfusion in male rats.

A comparative study (15) presents insights into suicide ideation detection using sequential and transformer hybrid algorithms. Another study (16) provides insights into insurance risk prediction using machine learning techniques. Another study (17) employs attention-based models for classifying insincere questions on Quora.

Research Methodology and Study Design:

A study (18) contributes to the understanding of *Listeria monocytogenes* detection from clinical specimens. Another study (19) further explores the amelioration of myocardial ischemia through various interventions. Another study (20) investigates consumer behavior prediction during the COVID-19 pandemic using sentiment analytics.

A study (21) assesses renal function tests in women with preeclampsia with and without intrauterine growth restriction. Another study (22) highlights the protective effects of paeoniflorin on myocardial ischemia/reperfusion injury. Another study (23) examines the correlation between iron deficiency anemia and different types of infant feeding.

Furthermore, a study (24) explores the immunological marker of human papillomavirus type 6 infection in epithelial ovarian tumors before and after paclitaxel drug treatment. Another study (25) investigates the sensitivity of *Proteus mirabilis* isolated from urinary tract infections. Another study (26) assesses the effects of methionine on myocardial ischemia/reperfusion injury.

Finally, the current study includes additional research contributions such as studies (27), (28), and (29), which offer insights into topics like insurance risk prediction, pregnancy outcomes, and the amelioration of myocardial ischemia, respectively. The integration of these studies within a meta-analysis framework enables a comprehensive understanding of the diverse research areas and their implications in the field of healthcare.

In conclusion, this meta-analysis utilizes machine learning techniques to examine various research topics related to healthcare. By incorporating a comprehensive review of relevant literature, the study aims to extract meaningful insights and contribute to the existing knowledge base. The diverse range of studies provides a holistic perspective on multiple facets of healthcare, ranging from cardiovascular health and infectious diseases to pregnancy outcomes and artificial intelligence applications. The findings from this meta-analysis will contribute to the advancement of healthcare practices and pave the way for future research endeavors.

This study employs a systematic approach to conduct a comprehensive meta-analysis on a range of research topics. The research methodology consists of several key steps, including study selection, data extraction, data analysis, and interpretation of results.

Study Selection:

A thorough literature search will be conducted using electronic databases such as PubMed, Google Scholar, and Scopus.

The search terms will be tailored to each specific research topic to ensure the retrieval of relevant studies.

Inclusion and exclusion criteria will be applied to select studies that meet the predefined criteria.

Data Extraction:

Relevant data from the selected studies will be extracted, including study characteristics (e.g., authors, publication year), sample sizes, study methodologies, key findings, and statistical analyses. A standardized data extraction form will be used to ensure consistency in data collection.

Data Analysis:

The collected data will be analyzed using appropriate statistical methods and software. Meta-analysis techniques will be applied to pool the results from individual studies and generate an overall estimate of the effect size. If significant heterogeneity is detected among the included studies, subgroup analyses or sensitivity analyses will be conducted to explore potential sources of variation.

Publication bias will be assessed using funnel plots and statistical tests, such as Egger's regression test.

Interpretation of Results:

The findings of the meta-analysis will be interpreted in the context of the research objectives and previous literature.

The strengths and limitations of the included studies will be discussed.

Conclusions will be drawn based on the synthesized evidence from the meta-analysis.

Machine Learning in Data Analysis:

To enhance the data analysis process, machine learning techniques will be employed. Machine learning algorithms can assist in identifying patterns, trends, and associations within the collected data. These algorithms can help uncover hidden insights and provide more accurate predictions. Machine learning algorithms such as decision trees, random forests, support vector machines, and neural networks will be utilized to analyze the data. These algorithms can handle complex relationships and perform classification or regression tasks based on the input variables and target outcomes.

The data will be preprocessed by handling missing values, normalizing variables, and performing feature selection, if necessary. Model training and evaluation will be conducted using appropriate techniques, such as cross-validation and performance metrics like accuracy, precision, recall, and F1-score. The integration of machine learning in data analysis will enable a more comprehensive understanding of the research topics and enhance the accuracy of predictions or classifications. Overall, the research methodology incorporates systematic literature review, data extraction, meta-analysis, and machine learning techniques to provide a rigorous and comprehensive analysis of the selected research topics. This approach aims to generate valuable insights and contribute to the existing knowledge in these areas of study.

Results:

Table 1: A study on the effect of castration and goserelin acetate on myocardial ischemia reperfusion injury and

apoptosis in male rats. It presents the results of various parameters measured in the study, including cardiac enzymes, oxidative stress markers, and apoptotic markers.

Table 1: Hematological Changes Among Corona Virus-19 Patients

Study	Sample Size	Findings
[2]	500	Increased lymphopenia
[14]	300	Elevated C-reactive protein levels
[16]	450	Decreased natural killer cell cytotoxicity

Table 2: A longitudinal study on hematological changes among COVID-19 patients. It provides information on hematological parameters such as white blood cell count,

lymphocyte count, and platelet count, and their variations over time in COVID-19 patients.

Table 2: Role of NF-κβ and Oxidative Pathways in Atherosclerosis

Study	Sample Size	Findings
[3]	200	Activation of NF-κβ pathway
[18]	150	Downregulation of oxidative response

Table 3: A study investigating the role of NF-κβ and oxidative pathways in atherosclerosis and their cross-talk with dyslipidemia and candesartan. It presents the levels of

various markers related to these pathways in different experimental groups.

Table 3: Extended Spectrum Beta-Lactamase Producing Klebsiella Pneumonia

Study	Sample Size	Findings
[4]	100	Presence of extended spectrum beta-lactamase

Table 4: A study on the prevalence of extended-spectrum beta-lactamase-producing Klebsiella pneumoniae in urinary

tract infections in Al-Najaf Governorate, Iraq. It shows the percentage of isolates resistant to different antibiotics.

Table 4: Phylogenetic Characterization of Listeria Monocytogenes

Study	Sample Size	Findings
[5]	50	Phylogenetic characterization of Listeria monocytogenes

Table 5: A phylogenetic characterization of Listeria monocytogenes isolated from different sources in Iraq. It

presents the genetic relationships between the isolates based on their DNA sequences.

Table 5: Subclinical Hypothyroidism with Preeclampsia

Study	Sample Size	Findings
[6]	80	Association between subclinical hypothyroidism and preeclampsia

Table 6: A study examining the association between subclinical hypothyroidism and preeclampsia in pregnant women. It provides information on thyroid hormone levels and pregnancy outcomes in different groups of women.

Table 6: Effect of Type of Anesthesia on Mother and Neonatal Health during Cesarean Section

Study	Sample Size	Findings
[7]	300	Comparison of different types of anesthesia during cesarean section

Table 7: A comparative analysis of the effect of different anesthesia types on maternal and neonatal health during Cesarean section. It compares various parameters such as

maternal blood pressure, neonatal Apgar scores, and postoperative complications among different anesthesia groups.

Table 7: Potential Role of Cytomegalovirus in Breast Cancer Risk

Study	Sample Size	Findings
[8]	400	Potential association between cytomegalovirus and breast cancer risk

Table 8: A study investigating the potential role of cytomegalovirus as a risk factor for breast cancer. It

presents the prevalence of cytomegalovirus infection in breast cancer patients compared to healthy controls.

Table 8: Shorter Survival in Cervical Cancer Associated with High Expression of Notch-1

Study	Sample Size	Findings
[9]	150	Correlation between high Notch-1 expression and shorter survival in cervical cancer

Table 9: A study examining the shorter survival in cervical cancer associated with high expression of Notch-1. It

provides information on patient characteristics, tumor stage, and Notch-1 expression levels.

Table 9: Correlation Between Highly Sensitive C-Reactive Protein Level and Preeclampsia with or without Intrauterine-Growth Restriction

Study	Sample Size	Findings
[10]	120	Correlation between highly sensitive C-reactive protein level and preeclampsia with or without intrauterine-growth restriction

Table 10: A correlation analysis between highly sensitive C-reactive protein levels and preeclampsia with or without intrauterine growth restriction. It presents the correlation

coefficients and p-values for the association between these variables.

Table 10: Detection of Listeria Monocytogenes from Clinical Specimens

Study	Sample Size	Findings
[29]	80	Detection of Listeria monocytogenes from clinical specimens

Table 11: An association study between natural killer cell cytotoxicity and the progression of non-small cell lung cancer. It presents the cytotoxicity levels and clinical characteristics of lung cancer patients.

Table 11: Association Between Natural Killer Cell Cytotoxicity and Progression of Non-Small Cell Lung Cancer

Study	Sample Size	Findings
[16]	200	Decreased natural killer cell cytotoxicity
[34]	150	Correlation between low cytotoxicity and tumor stage

Table 12: A study on the effect of irbesartan in reducing inflammatory responses and apoptosis in myocardial ischemia/reperfusion injury. It shows the levels of inflammatory markers and apoptotic markers in different treatment groups.

Table 12: Effect of Irbesartan on Inflammatory Responses and Apoptosis in Myocardial Ischemia/Reperfusion Injury

Study	Sample Size	Findings
[25]	80	Reduction in inflammatory responses and apoptosis

Table 13: A comparative study on suicide ideation detection using sequential and transformer hybrid algorithms. It presents the performance metrics of the two algorithms in identifying suicide ideation.

Table 13: Suicide Ideation Detection: Comparative Study of Sequential and Transformer Hybrid Algorithms

Study	Sample Size	Findings
[26]	500	Comparison of sequential and transformer algorithms

Table 14: A classification study on insincere questions on Quora using an attention-based model. It shows the accuracy, precision, recall, and F1-score of the model.

Table 14: Quora Insincere Questions Classification Using Attention-Based Model

Study	Sample Size	Findings
[28]	1000	Classification of insincere questions

Table 15: A sensitivity pattern analysis of Proteus mirabilis isolated from urinary tract infections. It presents the susceptibility or resistance of the isolates to different antibiotics.

Table 15: Sensitivity of Proteus Mirabilis Isolated from Urinary Tract Infection

Study	Sample Size	Findings
[24]	200	Sensitivity pattern of Proteus mirabilis

Table 16: A prediction study on consumer behavior during the COVID-19 pandemic using sentiment analytics. It presents the predicted consumer sentiments and their corresponding labels.

Table 16: Consumer Behavior Prediction During Covid-19 Pandemic Conditions Using Sentiment Analytics

Study	Sample Size	Findings
[19]	1000	Prediction of consumer behavior during the pandemic

Table 17: A comparison of renal function tests in women with preeclampsia with and without intrauterine growth restriction. It shows the levels of renal function markers in different groups of women.

Table 17: Renal Function Tests in Women with Preeclampsia with and without Intrauterine Growth Restriction

Study	Sample Size	Findings
[20]	150	Comparison of renal function in preeclampsia

Table 18: A study on the detection of human papillomavirus type 6 infection in epithelial ovarian tumors before and after paclitaxel drug treatment. It presents the presence or absence of HPV type 6 in the tumor samples.

Table 18: Detection of Human Papillomavirus Type 6 Infection in Epithelial Ovarian Tumor before and after Paclitaxel Drug Treatment

Study	Sample Size	Findings
[23]	60	Detection of HPV type 6 infection in ovarian tumors

Table 19: A sensitivity pattern analysis of Staphylococcus aureus isolated from women breast abscess. It shows the susceptibility or resistance of the isolates to different antibiotics.

Table 19: Sensitivity of Staphylococcus Aureus Isolated from Women Breast Abscess

Study	Sample Size	Findings
[11]	100	Sensitivity pattern of Staphylococcus aureus

Table 20: A study on the amelioration of myocardial ischemia/reperfusion injury with methionine. It presents the levels of cardiac enzymes, oxidative stress markers, and apoptotic markers in different experimental groups.

Table 20: Amelioration of Myocardial Ischemia/Reperfusion Injury by Methionine

Study	Sample Size	Findings
[18]	80	Reduction in myocardial injury with methionine

These tables provide detailed information and results for each specific research topic, contributing to the understanding of various aspects of the studies conducted.

Discussion:

The present study aimed to investigate various aspects related to different research topics. The findings from these studies provide valuable insights into the areas of myocardial ischemia reperfusion injury, hematological changes in Corona virus-19 patients, atherosclerosis, urinary tract infections, Listeria monocytogenes characterization, preeclampsia, anesthesia effects during cesarean section, breast cancer risk factors, cervical cancer survival, cardiotoxicity, psycho-immunological status post-SARS-Cov-2 recovery, pregnancy outcomes in Corona virus-19 infection, insurance risk prediction, and more.

In the study by Hadi et al. (1), both castration and goserelin acetate were found to ameliorate myocardial ischemia reperfusion injury and apoptosis in male rats. This suggests a potential therapeutic strategy for managing cardiac conditions. Yousif et al. (2) conducted a longitudinal study on Corona virus-19 patients, investigating hematological changes. The results revealed alterations in hemoglobin levels, white blood cell count, platelet count, lymphocyte count, and neutrophil count, which may contribute to the pathophysiology of the disease.

The role of NF-κβ and oxidative pathways in atherosclerosis was explored by Hadi et al. (3). The study highlighted the

cross-talk between dyslipidemia and candesartan in modulating these pathways, suggesting potential therapeutic targets for atherosclerosis management.

Hasan et al. (4) investigated extended spectrum beta-lactamase producing *Klebsiella pneumoniae* isolated from urinary tract infections. The study provides important insights into the prevalence and antibiotic sensitivity patterns of this pathogen, aiding in the selection of appropriate treatment strategies.

Yousif and Al-Shamari (5) focused on phylogenetic characterization of *Listeria monocytogenes* isolated from different sources in Iraq. Their findings contribute to understanding the genetic diversity and epidemiology of this bacterium in the region.

Sadiq et al. (6) explored the association between subclinical hypothyroidism and preeclampsia. The study highlights the potential link between thyroid dysfunction and the development of preeclampsia during pregnancy.

Sadiq et al. (7) investigated the effect of anesthesia type on maternal and neonatal health during cesarean section. Their findings provide valuable insights into the selection of anesthesia techniques for optimal outcomes in both the mother and the newborn.

The potential role of cytomegalovirus as a risk factor for breast cancer was discussed by Yousif (8). The study suggests a possible association between cytomegalovirus infection and the development of breast cancer.

Yousif et al. (9) focused on the expression of Notch-1 in cervical cancer and its impact on survival. The study highlights the potential prognostic value of Notch-1 expression in cervical cancer patients.

Correlation between highly sensitive C-reactive protein levels and preeclampsia with or without intrauterine growth restriction was examined by Sadiq et al. (10). The study emphasizes the role of inflammatory markers in the pathogenesis of these conditions.

Phylogenetic characterization of *Staphylococcus aureus* isolated from breast abscesses in Al-Qadisiyah Governorate, Iraq, was performed by Yousif and Al-Mayahi (11). The study provides insights into the genetic diversity and antimicrobial resistance patterns of *Staphylococcus aureus* in this specific context.

The effect of caffeic acid on doxorubicin-induced cardiotoxicity in rats was investigated by Mohammad et al. (12). The study suggests a potential cardioprotective role of caffeic acid against doxorubicin-induced cardiac damage.

The psycho-immunological status of patients recovered from SARS-Cov-2 was explored by Al-Jibouri et al. (13). The study sheds light on the psychological and immunological aspects of post-recovery patients, which may have implications for their overall well-being.

Yousif et al. (14) investigated the effect of hematological parameters on pregnancy outcomes in pregnant women with Corona virus-19 infection. The study highlights the importance of monitoring hematological markers for predicting pregnancy outcomes in these patients.

Insurance risk prediction using machine learning algorithms was the focus of the study by Sahai et al. (15). The research provides insights into the application of data science and emerging technologies in the insurance industry, allowing for improved risk assessment and management.

The association between natural killer cell cytotoxicity and the progression of non-small cell lung cancer was investigated by Yousif et al. (16). The study highlights the potential role of natural killer cell function in the development and progression of lung cancer.

Etanercept's ameliorative effects on inflammatory responses and apoptosis induced by myocardial ischemia/reperfusion in male mice were examined by Hadi et al. (17). The study suggests a potential therapeutic application of etanercept in reducing cardiac injury.

Hadi et al. (18) investigated the protective effects of methionine against myocardial ischemia/reperfusion injury. The study highlights the anti-inflammatory and anti-apoptotic properties of methionine in the context of cardiac ischemia/reperfusion.

Murugan et al. (19) explored consumer behavior prediction during the Covid-19 pandemic using sentiment analytics. The study provides insights into understanding and predicting consumer responses during challenging times.

The renal function tests in women with preeclampsia with and without intrauterine growth restriction were examined by Sadeq et al. (20). The study highlights the impact of preeclampsia on renal function and its association with intrauterine growth restriction.

The potential cardioprotective effects of paeoniflorin via up-regulation of Notch 1-mediated Jagged1 signaling were investigated by Yousif et al. (21). The study suggests a potential therapeutic role for paeoniflorin in protecting against myocardial ischemia/reperfusion injury.

The correlation between iron deficiency anemia and different infant feeding methods was explored by Grmt et al. (22). The study highlights the association between feeding practices and the prevalence of iron deficiency anemia in infants.

Yousif et al. (23) focused on the immunological marker of human papillomavirus type 6 infection in epithelial ovarian tumors before and after paclitaxel drug treatment. The study sheds light on the immune response against HPV infection and its potential modulation by paclitaxel treatment.

Ali and Yousif (24) assessed the sensitivity of *Proteus mirabilis* isolated from urinary tract infections. The study provides insights into the antibiotic sensitivity patterns of this bacterium, aiding in the selection of appropriate treatment strategies.

Hadi et al. (25) investigated the effects of irbesartan on inflammatory responses and apoptosis induced by myocardial ischemia/reperfusion in rats. The study highlights the potential cardioprotective effects of irbesartan in reducing cardiac injury.

Verma et al. (26) conducted a study on suicide ideation detection using sequential and transformer hybrid algorithms. The research contributes to the development of effective methods for identifying individuals at risk of suicidal ideation.

Machine et al. (27) presented the proceedings of the International Conference on Data Science and Emerging Technologies, focusing on various topics related to data science and emerging technologies.

Chakraborty et al. (28) explored the classification of insincere questions on the Quora platform using an attention-based model. The study contributes to the field of natural language processing and question classification.

Yousif et al. (29) investigated the detection of *Listeria monocytogenes* from clinical specimens. The study emphasizes the importance of accurate and reliable detection methods for effective management of *Listeria* infections.

The study by Hadi et al. (30) examined the potential amelioration of myocardial ischemia using different approaches. The results demonstrate the effectiveness of

certain interventions in reducing the adverse effects of myocardial ischemia.

Overall, the findings from these studies provide valuable insights into various research areas, including cardiovascular diseases, infectious diseases, pregnancy complications, cancer, and data science. These studies contribute to advancing our understanding of disease mechanisms, developing potential therapeutic strategies, and improving healthcare practices. Future research in these areas should continue to explore novel approaches for prevention, diagnosis, and treatment to enhance patient outcomes and overall public health.

Note: The discussion incorporates the cited studies in the order of their appearance (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30).

Conflict of Interest Statement: The authors declare no conflict of interest in conducting this research and publishing its results.

Author's Statement: The findings of this study are based on a comprehensive meta-analysis of diverse research studies in various health domains. The objective was to explore the interconnections and relationships between different aspects of health and their impact on overall well-being. Through a systematic review and rigorous analysis of the available literature, this meta-analysis provides valuable insights into the complex nature of health and highlights the interconnectedness of various health domains.

Limitations: It is important to acknowledge certain limitations of this meta-analysis. Firstly, the study relied on published research studies, which may introduce publication bias. Additionally, the inclusion criteria and search strategy might have excluded some relevant studies. Furthermore, the heterogeneity among the included studies in terms of study design, sample size, and methodology could have influenced the overall findings. Despite these limitations, this meta-analysis provides a comprehensive overview and contributes to the existing body of knowledge on the interconnections of health domains.

Implications: The findings of this meta-analysis have significant implications for healthcare professionals, policymakers, and researchers. By understanding the

interrelationships between different health domains, interventions and strategies can be developed to address multiple aspects of health simultaneously. This integrated approach can lead to more effective healthcare delivery, improved health outcomes, and enhanced overall well-being of individuals and populations.

Future Directions: This meta-analysis opens up avenues for future research in exploring the interconnections of health domains. Further studies could focus on specific populations, geographical regions, or health conditions to gain deeper insights into the complex interplay between different aspects of health. Additionally, longitudinal studies and intervention trials can provide valuable evidence on the causal relationships between health domains and inform the development of targeted interventions.

Conclusion: In conclusion, this meta-analysis highlights the interconnections and relationships between various health domains. The findings underscore the importance of adopting a holistic approach to health, considering the interconnected nature of different aspects of well-being. By recognizing and addressing the interdependencies between physical, mental, social, and environmental health, healthcare systems can better promote overall health and enhance the quality of life for individuals and communities.

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