



**EXAMINING PHYSIOLOGICAL EFFECTS OF
SOFT DRINKS, YOGURT, RAISIN JUICE, AND
BLACK LIME INFUSIONS: GASTRIC AND
BLOOD GLUCOSE INSIGHTS**

AYA SHAMSALDEEN AHMAD

DOHA RAMADAN ATYA

ELAF ABDULMONEM KURKA

TABARK TARIQ KHAZAL

2024 – 2025

Thesis submitted in fulfilment of the requirements

for the degree of

Bachelor of Pharmacy

**EXAMINING PHYSIOLOGICAL EFFECTS OF SOFT DRINKS,
YOGURT, RAISIN JUICE, AND BLACK LIME INFUSIONS: GASTRIC
AND BLOOD GLUCOSE INSIGHTS**



ABSTRACT

This study examines the impact of four commonly consumed beverages in Iraq during fasting: black lime, raisin juice, yogurt, and soft drinks. The beverages were selected based on a community-based survey identifying them as popular choices.

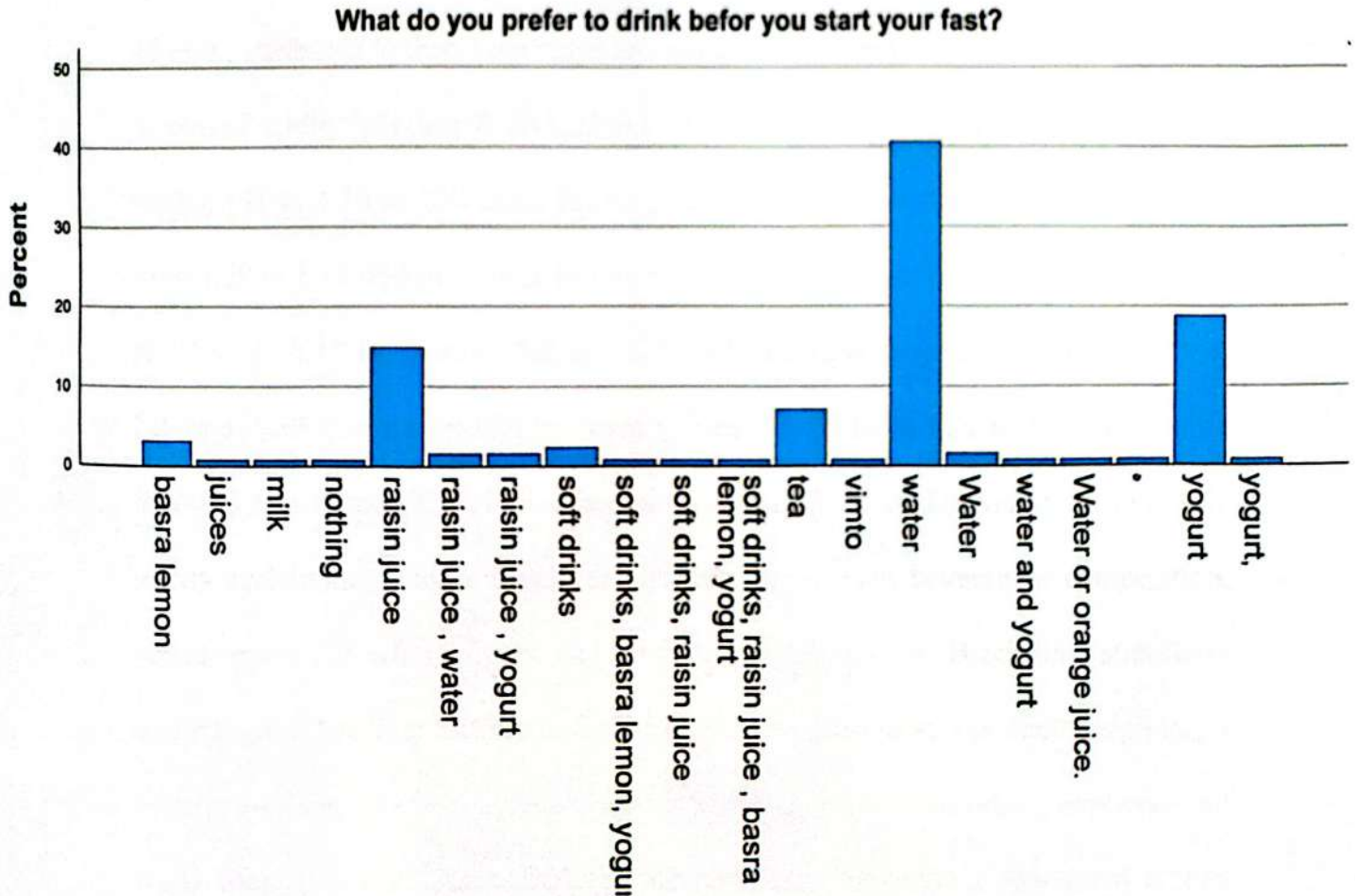


Fig 1.1 Common Beverage Choices Before Starting the Fast Based on an Online Survey

At the in vitro level, their acidity was assessed using artificial gastric juice, with pH recorded over 120 minutes. Additionally, a controlled trial with 50 fasting participants measured blood glucose levels at baseline and multiple time intervals post-consumption. Black lime significantly lowered blood glucose, with one participant's level dropping from 127 mg/dL to 80 mg/dL within 90 minutes. Raisin juice caused a moderate, temporary increase from 96 mg/dL to 101 mg/dL at 30 min., returning to baseline after 2 hours, suggesting a stable energy source. Yogurt gradually reduced blood glucose from 102 mg/dL to 75 mg/dL after 120 min., likely due to its protein and fat content slowing glucose absorption. Soft drinks led to a rapid glucose spike from 91 mg/dL to 167 mg/dL within 15 min., followed by a decline to 140 mg/dL after 45 min., attributed to their high sugar content and insulin response. Black lime initially increased acidity (pH drop from 1.27 to 1.24 at 30 min.) but later had a buffering effect, raising pH to 1.30 at 120 min., Raisin juice slightly reduced acidity, increasing pH from 1.29 to 1.31 within 15 min. before returning to baseline. Yogurt initially lowered pH (1.21 to 1.17 in 15 min.) but gradually balanced gastric acidity, reaching 1.26 at 120 min. Soft drinks caused a transient increase in pH from 1.21 to 1.31 at 45 min., followed by a drop to 1.17, indicating minimal overall effect. The variations in gastric acidity and blood glucose levels are influenced by each beverage's composition, including organic acids, sugars, and fermentation byproducts. Black lime stimulates acid secretion but later buffers it. Soft drinks cause glucose spikes due to high sugar content, while yogurt slows glucose absorption. Raisin juice provides a moderate and stable energy supply. These findings highlight how beverage composition affects metabolic responses during fasting.





Al-Kitab university – Collage of Pharmacy

Nature Of Awareness And Knowledge

About Water Heath Quality In Iraqi Governorates

A Project Submitted to the Department Council as part of the

requirements for obtaining a Bachelor's degree in Pharmacy

at Al-Kitab University

By

Abdullah Mohammed Qaddouri

Abrahem anas Abdullah

Mustafa Hashim Hamid

Younis Issa Ali



2025 A.D.

1446 A.H.



Abstract

This study explores the nature of awareness and knowledge regarding water health quality among residents of various Iraqi governorates. In light of the growing concerns about waterborne diseases and contamination, it is essential to assess how well communities understand these issues. The research utilizes a mixed-methods approach, incorporating quantitative surveys and qualitative interviews to gather comprehensive data on public perception, knowledge, and behaviors related to water quality. Initial findings suggest significant disparities in awareness levels, influenced by factors such as educational background, socio-economic status, and access to information sources.

Aims of the Study

To assess the levels of awareness and knowledge about water health quality across different Iraqi governorates and identify key information sources that shape public understanding of water quality issues.

III

List Of Contents

No.	Subject	Page
-----	---------	------



**Navigating the Possibilities and Boundaries of AI in
Higher Education: A Case Study of Pharmacy
Students at an Iraqi University**

MUSA MAHMOOD AHMED

AL KITAB UNIVERSITY

2025



NAVIGATING THE POSSIBILITIES AND BOUNDARIES OF AI IN HIGHER EDUCATION: A CASE STUDY OF PHARMACY STUDENTS AT AN IRAQI UNIVERSITY

ABSTRACT

The concept of artificial intelligence (AI) dates back to the early 20th century, but significant advancements began in the mid 20th century. In 1943, McCulloch and Pitts introduced the first mathematical model of neural networks, laying the foundation for AI. Alan Turing's 1950 paper, "Computing Machinery and Intelligence," proposed the Turing Test to evaluate machine intelligence. The term "Artificial Intelligence" was officially introduced by John McCarthy during the Dartmouth Conference in 1956, marking AI's recognition as a formal field of study. Subsequent breakthroughs, such as the development of the Perceptron (1957), expert systems like MYCIN (1970s), and International Business Machines (IBM) Deep Blue defeating chess champion Garry Kasparov in 1997, demonstrated AI's potential in various fields. The 21st century has seen rapid AI advancements, particularly in deep learning and big data applications, influencing sectors including healthcare and pharmacy.

The rapid integration of AI into higher education, particularly within pharmacy, presents transformative opportunities for enhancing learning, clinical decision making, and research efficiency. However, its adoption in developing regions like Iraq remains underexplored and under implemented, with critical gaps in understanding educational, ethical, and practical implications. AI use among health practitioners such as pharmacists can improve decision making, optimize medication management, enhance patient safety, and streamline pharmaceutical research. Despite its potential, concerns about language barriers, ethical considerations, skill acquisition, and institutional readiness hinder its widespread implementation.

This study investigates AI adoption among pharmacy students at an Iraqi university, addressing four main factors: familiarity and usage of AI, language and proficiency barriers, ethical challenges, and AI skill development. The results were analyzed using SPSS®, employing descriptive statistics, chi square tests, correlation.





analyses, and regression models to explore relationships between AI adoption and key variables.

A cross sectional descriptive e survey using Google Forms was conducted among 188 pharmacy students and recent graduates from various academic stages (44.7% in their fifth year, 31.9% in their fourth year, and 14.9% graduates) residing in different Iraqi cities. The e survey covered demographic context, AI awareness and familiarity, utilization of AI, ethical considerations, and AI skill levels, aligning with the study's four core factors. Statistical analyses, including cross tabulations and correlations, assessed relationships between language proficiency, AI usage, ethical awareness, and willingness to invest in AI education.

The findings revealed that a majority of students (74.5%) were familiar with AI, with 68.6% actively using AI tools in their studies, primarily ChatGPT® (81.9%), followed by Copilot® (5.9%) and Gemini® (6.9%). AI was most commonly used for laboratory reports and homework writing (69.1%), conceptual clarification (59.6%), and curriculum supplementation (54.8%). Language proficiency was a key factor: Iraq ranked 107th in the EF English Proficiency Index [1], yet 85.1% of students used English based AI tools. Fluent English speakers had a 22.2% adoption rate compared to 5.9% among beginners, highlighting the dominance of English language platforms and the limited availability of Arabic, Kurdish, and Turkmen AI tools. Higher language proficiency in English and Arabic correlated positively with increased AI usage and skill levels.

Ethical awareness was notably low. Only 17.6% of students recognized AI related patient privacy regulations, and a mere 8.0% understood HIPAA/GDPR frameworks. While 53.2% critically evaluated AI generated content, 40.4% reported moderate competence in addressing inaccuracies, and 21.3% handled errors poorly, revealing gaps in verification protocols and academic integrity measures. Skill gaps were evident: 34.6% of students identified as intermediate users, 21.8% as basic users, and only 6.4% as experts.

Regional differences further influenced AI adoption. Northern Iraq reported the highest AI familiarity (60%) and optimism about AI's role in education (44%), while

the South (52% familiarity, 29% utility), East (58% familiarity, 28% utility), and West (47% familiarity, 42% utility) lagged behind. This variation can be attributed to differences in access to private universities, the presence of international schools, and training programs linked to embassies and foreign institutions, which are more prevalent in the North.

Several challenges hinder AI adoption in pharmacy education, including language barriers, lack of institutional support, skill gaps, and ethical concerns. Despite these obstacles, 72.4% of students viewed AI as beneficial for pharmacy education, particularly in drug design (46.3%) and early symptom diagnosis (41.5%). However, 50% were uncertain about AI's role in antibiotic optimization. While 38.3% had used in silico AI tools, 56.4% lacked exposure, highlighting untapped potential in computational research. Financial willingness for AI education was divided: 44.1% were willing to pay for AI courses, particularly intermediate users, while 34% were skeptical about cost effectiveness. Importantly, 67.5% emphasized the need for ethical adaptation in pharmacy curricula, although 26.1% remained neutral, reflecting gaps in AI ethics education.

This study highlights three key areas for reform: 1) Integrating AI literacy modules into pharmacy curricula, focusing on drug discovery, diagnostic algorithms, and ethical considerations 2) Investing in localized AI tools and fostering interdisciplinary collaborations to address language and regional gaps and 3) Establishing policies to ensure transparency in AI generated content and compliance with HIPAA/GDPR aligned data governance. Addressing these challenges will enable a balanced and responsible approach to AI integration in pharmacy education, ensuring that future pharmacists are equipped for AI driven healthcare landscapes.



Republic of Iraq Ministry of Higher Education and Scientific Research



Al-Kitab university – Collage of Pharmacy

Evaluation of IL-6 in patient with DM2

A Project Submitted to the Department Council as part of the
requirements for obtaining a Bachelor's degree in Pharmacy

at Al-Kitab University

By

Manar Alhuda Fayyad

Maryam Ahmed Mawlud

Mumen Jangiz Rashed

Sahar Hussain Sultan

Supervised

Dr. Asst. Prof. Thulfiqar Abdullah

B.D.S.M.S.C



2025 A.D.

1446 A.H.



Abstract

Background : Type 2 Diabetes Mellitus (T2DM) is one of the most common metabolic disorders worldwide and its development is primarily caused by a combination of two main factors: defective insulin secretion by pancreatic β -cells and the inability of insulin-sensitive tissues to respond to insulin. Researchers have linked the proinflammatory cytokine interleukin-6 (IL-6) to the progression of T2DM, observing elevated levels in DN patients compared to those without T2DM.

Aim of study : The study aims to investigate IL-6 levels in patients with T2DM

Materials and Methods : This case control (comparative) study was carried out on a study group of people aged 30 to 60 who visited Kirkuk General Hospital and private clinics between January 1st, 2025, and February 31st, 2025. A vein was punctured in each person to extract roughly 5 milliliters of blood. A complete blood sample was extracted for an immediate FBS, HbA1c, and lipid profile measurement within two hours of collection. The remaining blood sample was transferred to a sterile plain tube and allowed to coagulate for 10 to 15 minutes at room temperature. The tube was then centrifuged for 15 minutes at 3000 rounds per minute (rpm) in order to extract a serum sample. The material was separated right away, put into three dry, clear Eppendorf tubes, labeled with a number, and stored at -20°C until it was time for analysis. The measurement of IL6 was done using the serum sample.

Results : The study's findings demonstrated that, when compared to the number and percentage of age range (years) that recorded fewer number and percentage from the total sample count of 50, the age groups (35–44) and (45–54) had equal cases of type-2 diabetes mellitus with 20 (33%), while the age groups (55–64) and > 64 had 10 (17%). These differences were statistically not significant (P -value = 0.2). The current study's findings showed that the number and percentages of people with type-2 diabetes mellitus varied significantly by gender (P -value = 0.02). The results showed that IL-6 (ng/ml) in DM2 was considerably higher than in the control group, with a P -value ≤ 0.05 . The findings observed that there were significantly increase of FBS (mg/dl) in DM2 as compared to control with P -value ≤ 0.05 . As well as findings observed that there were significantly increase of HbA1c (%) in DM2 as compared to control with P -value ≤ 0.05 . The findings observed that there were significantly increase, the findings observed that there were significantly increase of Total cholesterol as compared to control with P -value ≤ 0.05 .

Conclusions: IL6 levels are higher in type 2 diabetic patients than in the control group.



Republic of Iraq

**Ministry of Higher Education &
Scientific Research**

Al-Kitab University

College of Pharmacy



Hypothyroidism and Hypercholesterolemia

A Project Submitted to the Council of the College of Pharmacy as a Partial Fulfillment of the Requirements for the Degree of Bachelorism of Pharmacy

Submitted By:

Duha Jateen Medhat

Ghufran Fakhruddin Abbas

Mena Luay Arkan

Sahar Yassen Khalil

Supervised by:

Dr. Zulfiqar Abdullah

2024-2025



Abstract

Hypothyroidism is a widespread problem that reduces the functional ability of life. Hypothyroidism is associated with altered lipid levels, and the greatest chronic lipid abnormality is hypercholesterolaemia. This study aimed to estimate thyroid function test (TFT) and total cholesterol (T. Ch) among Iraqi patients at Kirkuk, Iraq. In this study, 40 specimens were collected, in December 2024, from patients who attended the private clinic at Kirkuk province, Iraq. The specimens were classified into two groups: Control group, (n=20), who had normal thyroid function test; and Patients, (n=20), who were classified as hypothyroidism. The study parameters were estimated by using Cobas diagnostic kit, with a fully automated clinical chemistry analyzer. Most of the participants in this study were females (57.50%) and those aged ranged between 20- and 40-years (75%). Our results showed a significant increase in TSH and a significant decrease in T3, and T4 in hypothyroidism patients, but both tests (T3, and T4) were normal. The total cholesterol level was significantly increase in the hypothyroidism group compared those healthy participants, which was 233 ± 26.98 mg/dl and 124.30 ± 20.83 mg/dl, with a p-value of less than 0.001. In conclusion, decreased thyroid secretion significantly increases plasma cholesterol levels. Thus, the assessment of lipids may be quite useful during the diagnosis and treatment of hypothyroid patients. Furthermore, it is desirable to routinely investigate them for early detection, allowing their early management.





Republic of Iraq

Ministry of higher education and scientific research

Alkitab university

Collage of pharmacy

SCREENING FOR PRE DIABETES IN OBESE PATIENTS

A Research Project Submitted to the College of Pharmacy at Al-Kitab University in Partial Fulfillment of the Requirements for the Degree of B.A. in Pharmacy

By :

SARA NAHRO OTHMAN

RAHMA YARUB SHABAN

HANAA IBRAHIM ABD

ANFAL MUNTHIR KAMAL

SUPERVISED BY:

Lect. Dr. THULFIQAR ABDULLAH MOHAMMED

AL-KITAB UNIVERSITY

2024-2025

ABSTRACT

Prediabetes is a condition where blood sugar levels are higher than normal but not high enough to be classified as diabetes. It means the body is starting to have trouble managing glucose, and without lifestyle changes, it can lead to type 2 diabetes.

The objective of this study was to identify early signs of high blood sugar or prediabetes, assess the risk of developing type 2 diabetes, and guide timely interventions to improve health outcomes.

FBG was taken from 50 patients with BMI and age we found that there is a high correlation between obesity (high BMI) and prediabetes

Due to the effect of excess body fat, especially around the abdomen, on the body's ability to regulate blood sugar.

Obesity leads to insulin resistance, where cells in the body become less responsive to insulin. As a result, glucose builds up in the blood instead of being absorbed into cells for energy.





Vitamin D and Osteoporosis in Postmenopausal Women

**Research project submitted in fulfilment of the requirements for the degree of
Bachelor of Pharmacy**

By

Lanya Hewa Ismael

Lava Ali Ahmed

Kani Murad Sdeeq

Supervised By

Lect. Dr. Thulfiqar Abdullah Mohammed

AL-KITAB UNIVERSITY

2024-2025



Abstract



Background: Osteoporosis is a common condition associated with aging and influenced by various factors, including body mass index (BMI) and vitamin D levels. This study investigates the demographic characteristics, BMI, and vitamin D3 status of individuals in relation to osteoporosis risk.

Methods: A total of 75 participants were categorized into two age groups: <45 years (normal, no signs of osteoporosis) and ≥ 45 years (suspected osteoporosis). Participants' BMI was classified as normal, overweight, or obese. Vitamin D3 levels were measured and categorized as deficient, insufficient, or normal.

Results: Among participants, 42.7% were aged <45 years, while 57.3% were ≥ 45 years. The majority were overweight (41.3%) or obese (25.3%), with a mean BMI of 27.27 (SD = 5.09). The mean vitamin D3 level was 20.875 ng/ml (SD = 15.421), with 57.3% of participants classified as vitamin D deficient, 20.0% as insufficient, and only 22.7% as normal. Vitamin D deficiency was more prevalent in participants aged ≥ 45 years (83.7%) compared to those <45 years (68.8%), and in obese individuals (89.5%) compared to those with normal BMI (84.0%) or overweight (64.5%). However, these associations were not statistically significant ($P > 0.05$).

Conclusion: The study highlights a high prevalence of vitamin D deficiency, particularly in older adults and obese individuals. Given the critical role of vitamin D in bone health, public health initiatives focused on screening, supplementation, and education are recommended to mitigate osteoporosis risk in vulnerable populations. Further research is warranted to explore the complex relationship between vitamin D status, BMI, and osteoporosis.



Al-Kitab
University

Republic of Iraq
Ministry of Higher Education and
Scientific research



College of Pharmacy

The **relevance of serum ALT, AST, and some of** **electrolytes in heart failure patients**

By

Ahmed Amanj Ibrahim

Fatima Emad Sameen

Meytham Fadhel Fatah

Supervised by

Dr. Thulfiqar Abdullah

2024-2025

Abstract



Heart failure is a common and serious condition that affects millions of people worldwide. It is characterized by the heart's inability to pump enough blood to meet the body's needs, leading to symptoms such as shortness of breath, fatigue, and swelling in the legs and abdomen. Monitoring serum levels of certain enzymes and electrolytes can provide valuable information about the severity and progression of heart failure. Two enzymes that are commonly measured in patients with heart failure are alanine aminotransferase (ALT) and aspartate aminotransferase (AST). These enzymes are released into the bloodstream when there is damage to the liver or heart muscle, respectively. Elevated levels of ALT and AST may indicate liver dysfunction or myocardial injury, both of which can worsen heart failure. In addition to enzyme levels, electrolyte imbalances can also play a significant role in heart failure. Electrolytes such as sodium, potassium, and magnesium are essential for proper heart function. Imbalances in these electrolytes can lead to arrhythmias, fluid retention, and other complications in patients with heart failure. Monitoring and correcting electrolyte levels can help improve symptoms and reduce the risk of complications. In conclusion, monitoring serum ALT and AST levels, as well as electrolyte levels, is important in the management of heart failure. These tests can provide valuable information about the severity of the condition and help guide treatment decisions. By closely monitoring these markers, healthcare providers can better manage heart failure and improve outcomes for patients.



**Ministry of Higher Education and
Research**

**Alkitab University
College of Pharmacy**

**Association Between *Helicobacter pylori* Stool Antigen
Positivity and ABO Blood Group Distribution in Mosul
Governorate, Iraq"**

A graduation research project Submitted by:

**Riyam Tahir Noaman
Hussam Ali Mohammed**

**Submitted to the Council
of College of Pharmacy
Alkitab University**

**As Partial Fulfillment For The Requirements
For Bachelor's Degree in Pharmacy Sciences**

**Supervised by:
Prof. Dr. Shatha Rouf Moustafa**

