

# GLOBAL JOURNAL

OF MEDICAL RESEARCH: K



## Interdisciplinary



Independent Medical Examination

Feelings and Religiosity Interlacing

Highlights

Reality Principle and Productivity

Potential of Artificial Intelligence

### Discovering Thoughts, Inventing Future



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## Holistic Approach to Pain

By Prof. Maria Kuman, PhD

*Abstract-* The article offers holistic approach to pain, definition of acute and chronic pain and how they need to be treated. Then the article explains why changes in the atmospheric pressure and microwave radiation increase the level of pain. The influence of our 4G and 5G technologies on our body, its health, and its levels of pain, is also discussed. Discussed is also the necessity to have safety regulations for the admissible safe electromagnetic radiation (including microwave radiation), in the way we have limits for safe ionization radiation. Since we all have electromagnetic field, which rules and regulates everything in the body, the influence of external electromagnetic fields (including microwaves) is substantial and should always be considered.

*Keywords:* pain; acute pain; chronic pain; pain and atmospheric pressure; pain and microwaves; pain and 4G/5G technologies; necessity of new regulations.

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## I. INTRODUCTION

Pain is the cry of the body for help. The body cries for help when the speed of metabolic processes at certain place is abnormal.

1. When the speed of processes is abnormally high, the pain is called acute pain. It usually serves the purpose to fight an invader-germ or restore damaged tissue. Since this needs to be done fast, the metabolic processes are sped up, which makes the temperature and electric characteristics at these places higher than in the surrounding media.
2. The body also cries for help when the speed of metabolic processes at certain place is much lower than in the surrounding media. These are the places of chronic pain, which have temperature and electric characteristics lower than the surrounding media because the metabolic processes are slower (usually caused by congested body)[1].

If chronic pain means metabolic processes slower than normal, putting ice on places of chronic pain is not right and this is what the doctors in the US recommend. Cooling indeed reduces temporarily the chronic pain because it slows down the propagation of pain impulses, but in a long run it slows down the process of healing. Thus, it is not right to put ice on top of places with chronic pain, which have slower metabolic processes, because the ice would slower the metabolic processes even farther and prolong the recovery. The right approach to chronic pain is to heat the painful place to speed the metabolic processes in it

or/and to cleanse the whole congested body, which will speed the metabolic processes in the whole body (see the last chapter Flushing the Body Clean of my book Delicious Herbal and Folk Remedies [2]).

## II. HOW CHANGES IN THE ATMOSPHERIC PRESSURE AND MICROWAVES INFLUENCE THE PAIN

All the doctors in the world know from observations that when the atmospheric pressure changes before the temperature would change, the pain of their patients goes up. They know this from observations, but they cannot explain why. I found explanation of why the pain increases when the atmospheric pressure changes in the ancient Chinese book on acupuncture [3]. According to the ancients, different size muscles contract differently when the atmospheric pressure changes(which makes sense). If so, when the atmospheric pressure changes, the different contraction of different size muscles will increase existing metabolic imbalance, which will increase the pain.

Other factor that increases the level of pain is microwave radiation. However, while the US scientists consider 10,000 to be safe, the Russian scientists claim that the safe level is 1 [4]. All the efforts of the Russian scientists to convince their American colleagues to lower their microwave safety standards were in vain-the safety level remained 10,000 [4]. Is this because in the US more pain means more gain? The information about what is considered safe in the US and Russia is in the book of Dr. Robert Becker "The Body Electric" [4]. Russian scientists also found that viruses manifest themselves in the aura in the mm diapason and our 4G internet is exactly in the mm diapason. This makes the 4G technologies and the ongoing pandemic related [5]. The oncoming 5G technologies with frequency 11 Hz according to study of Dr. Kanchgen (China) will change our DNA [6].

## III. MY FINDINGS THAT THE AURA (SPIRIT) IS EMOTIONAL

I spent more than 30 years of my life studding the aura. First, I was photographing the weak aura with Kirlian photography, which uses high frequency electric field to multiply the photons of the weak aura and make it photographable. (Kirlian photography of author's aura is shown on Fig. 1). Then I developed and patented very sensitive equipment capable to measure the weak field

of the aura (because it is 1,000 times weaker than the field created by the biocurrents of the body). My photos and my measurements showed that the aura is emotional—it shines brighter when we experience

positive emotions (or just think positively) and it is dimmer when we experience negative emotions (or just think negatively) [7].



*Fig. 1:* Kirlian Photography of Author's Aura in 1991



Since when we experience positive emotions (or just think positively), we feel in high Spirit, and when we experience negative emotions (or just think negatively) we feel in low Spirit, I concluded that the aura must be our emotional Spirit. Then I found that the Advanced Jewish Cabala was teaching to high priest that the aura is our Spirit [8]. I found that our aura (Spirit) is weak but very important informational field- it rules and regulates everything in the body not with its strength, but with the information it carries. Since only nonlinear electromagnetic fields (NEMF) do not dissipate and imprint information, I concluded that the aura (Spirit) must be NEMF. With my very sensitive equipment, I was able to measure the vortices (spinning clockwise) and anti-vortices (spinning counterclockwise) of this nonlinear field (NEMF) called “chakras”, which means “spinning wheels” in Sanskrit.

#### IV. THE AURA (SPIRIT) NEMF AND THE MICROWAVES

I also found that the weak informational field of the Spirit NEMF rules the functioning of the whole system. The Russians found that our aura (Spirit) is sensitive to microwaves. If our aura (Spirit) integrate the system, the microwaves by influencing the nonlinear electromagnetic field (NEMF) of the aura (Spirit)[9] would seriously disturb the system. This means that if there was pain somewhere related to imbalance, microwaves would increase the imbalance, which would increase the level of pain. This is especially true for back pain and joints' pain.

#### V. THE LEFT-RIGHT IMBALANCE OF BACK PAIN

During the years, when measuring with my super-sensitive patented equipment the weak informational NEMF of the aura (Spirit)(which rules and regulates everything in the material body), I found in full agreement with ancient acupuncture books [3] that for man the right side of the body is stronger than the left, while for women the left side of the body is stronger than the right.

I found with my supersensitive measurements that when the body was in perfect balance and there were no pain complains, for males the right side of the backbone was with 0.25 microamperes stronger, while for females the left side of the backbone was with 0.25 microamperes stronger. When the difference left-right was reaching the value 1 microampere, the imbalance was felt as pain. 1/ I found that microwave radiation increases the imbalance, which leads to increased level of pain [7]. 2/ I found that the imbalance increases and the pain increases when the atmospheric pressure changes before the weather would change because as I explained different size muscles contract differently.

#### VI. WISELY PROGRAMMED PAIN LIMITS TO MAKE THE PAIN TOLERABLE

Recently, I fell and broke the bone of my right leg under the fimus. For the bone to brake there, many muscles were extended beyond their level of tolerance. I was amazed how the process of muscle healing was wisely programed in time. The first week, I had strong pain on the inner side of the leg. After a week, the pain inside the leg subsided and I rejoiced that the next day I would be able to walk without pain. However, the next day I started feeling severe pain on the outer side of the leg.

After a week, when the pain outside the leg subsided and I rejoiced that the next day I would be able to walk without pain, I started feeling severe pain in the middle of the front side of the leg. The pain was wisely programed in the weak informational NEMF of the Spirit (seen as aura) - only one muscle to be painful at a time because if all 3 muscles were painful at once, it would be intolerable pain, i.e. too much to handle. It seems everything is wisely programmed in the weak informational NEMF of the Spirit.

#### VII. CONCLUSION

In this article, which is holistic approach to pain, I defined what is acute and chronic pain and how they need to be treated. Based on measurements with my supersensitive equipment, I explained the influence of changes in the atmospheric pressure and the influence of microwaves on back pain. Considering the fact that microwaves increase the level of pain, I underlined the necessity to have safety regulations about the amount of admissible electromagnetic radiation (including microwaves) in the way we have safety regulations for ionizing radiation.

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# The Transformative Potential of Artificial Intelligence in Medical Billing: A Global Perspective

By Victor Kilanko

**Abstract-** This paper explores the transformative potential of Artificial Intelligence (AI) in revolutionizing medical billing processes worldwide. As healthcare systems face increasing complexities and challenges, AI offers innovative solutions to streamline billing operations, enhance accuracy, and improve financial outcomes. By automating the claims processing workflow, AI can significantly reduce the administrative burden on healthcare providers, allowing them to focus more on patient care. AI-powered coding accuracy systems can analyze medical records and suggest appropriate billing codes, reducing coding errors and claim rejections. AI can also optimize reimbursement strategies by analyzing historical data and identifying patterns to ensure optimal reimbursement rates for healthcare providers. To address the growing concern of healthcare fraud, AI algorithms can analyze vast amounts of data, detect suspicious patterns, and flag potentially fraudulent activities, thus preventing financial losses. Moreover, AI-powered chatbots and virtual assistants can enhance patient engagement by providing personalized support, answering billing-related queries, and guiding patients through the payment process.

**Keywords:** *artificial intelligence, AI, medical billing, claims processing, coding accuracy, reimbursement optimization, fraud detection, patient outcome, revenue cycle management.*

**GJMR-K Classification:** ACM I.2.6



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**Keywords:** artificial intelligence, AI, medical billing, claims processing, coding accuracy, reimbursement optimization, fraud detection, patient outcome, revenue cycle management.

## I. INTRODUCTION

The landscape of medical billing is marked by intricate complex coding systems, and an evolving reimbursement framework, which collectively contribute to a significant burden on healthcare systems worldwide. The financial viability and sustainability of healthcare organizations heavily rely on efficient and accurate medical billing practices. However, the complexities inherent in this domain often lead to challenges such as coding errors, reimbursement delays, and increased administrative costs. As a result,

healthcare providers face financial strain, and patients may encounter difficulties navigating the intricacies of their medical bills. Considering these challenges, there is a pressing need to explore innovative approaches that can streamline medical billing, improve accuracy, and enhance the overall financial performance of healthcare systems.

The complexity of medical billing arises from multiple factors. First and foremost, the healthcare landscape is governed by an intricate web of regulations, policies, and payer guidelines that determine the billing and reimbursement process. Healthcare providers must navigate through a multitude of payer-specific rules and coding requirements, which often vary across insurance companies and government programs. This diversity of coding systems, such as the International Classification of Diseases (ICD) and Current Procedural Terminology (CPT), adds another layer of complexity to the billing process, requiring providers to stay updated with the latest coding changes and ensure compliance (AMA, 2020).

Furthermore, the transition from fee-for-service to value-based care models has introduced new complexities in medical billing. Value-based reimbursement models emphasize outcomes and quality of care, necessitating the capture and reporting of additional data elements beyond traditional billing codes. This shift places additional administrative burdens on healthcare providers, as they need to adapt their billing processes to align with value-based requirements and demonstrate their performance in achieving quality metrics (Friedberg et al., 2015).

In addition to regulatory and reimbursement complexities, medical billing also involves multiple stakeholders, including healthcare providers, payers, patients, and third-party billing entities. Each stakeholder operates within their own systems, technologies, and workflows, leading to fragmented communication and potential inefficiencies in the billing process. The manual nature of many billing tasks further exacerbates the challenges, as it increases the likelihood of errors and delays, impacting both financial performance and patient satisfaction (Casalino et al., 2016).

Addressing the complexity of medical billing requires innovative solutions that can streamline

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processes, improve accuracy, and reduce administrative burdens. One such solution that holds tremendous promise is the application of Artificial Intelligence (AI). AI technologies, such as machine learning algorithms, natural language processing, and automation, offer the potential to transform medical billing practices by automating tasks, detecting errors, optimizing reimbursement strategies, and enhancing overall efficiency (Patel et al., 2020).

The complexity of medical billing presents significant challenges for healthcare systems globally. Streamlining these processes and improving financial outcomes require innovative solutions. AI offers immense potential to address these challenges, optimizing revenue cycles, reducing errors, and enhancing efficiency. By exploring the transformative potential of AI (Kilanko, 2023) in medical billing, we can pave the way for more effective and sustainable healthcare systems.

## II. AI APPLICATIONS IN MEDICAL BILLING

Artificial Intelligence (AI) technologies have emerged as powerful and transformative tools that are

revolutionizing the field of medical billing. With the increasing complexities and challenges associated with billing processes in healthcare, the integration of AI offers tremendous potential to streamline operations, improve accuracy, and optimize revenue cycles (Table 1). Medical billing involves a multitude of tasks, from claims processing to coding and reimbursement, which traditionally require manual effort and are prone to errors and delays (Table 1). However, by harnessing the capabilities of AI, healthcare organizations can leverage advanced machine learning algorithms to automate and enhance these critical processes. AI-powered systems can analyze vast amounts of data, quickly identify patterns, and generate accurate and complete claims submissions, all while significantly reducing the need for manual intervention. This automation not only minimizes billing errors but also accelerates the reimbursement process, leading to faster and more efficient revenue cycles.

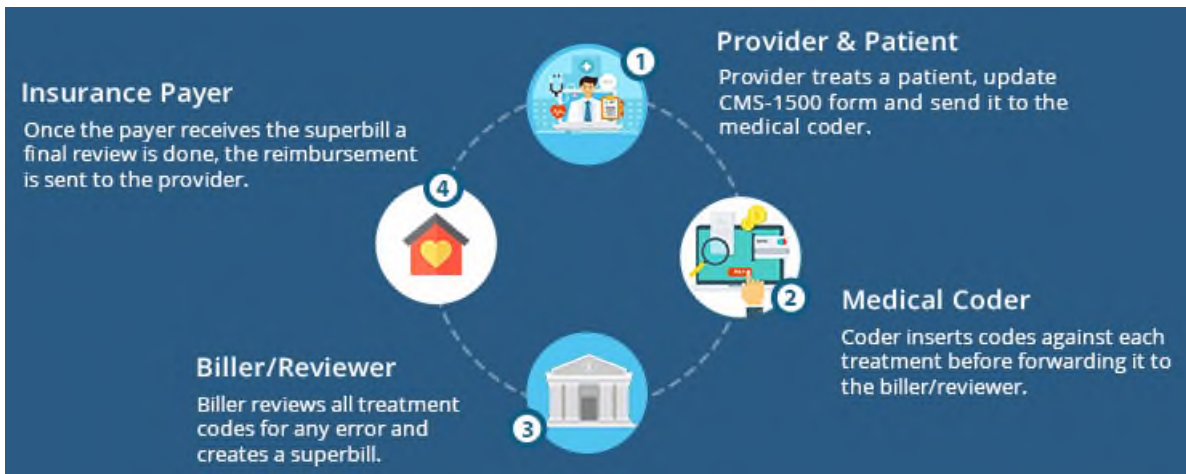
*Table 1:* AI Applications in Medical Billing Summary

AI Applications in Medical Billing	Description	References
Automated Claims Processing	AI automates the processing of medical claims, reducing errors and speeding up the claims process.	(Smith & Johnson, 2018; Chen et al., 2020)
Coding Assistance	AI systems assist in medical coding by suggesting appropriate billing codes based on clinical documentation.	(Chen et al. 2020)
Fraud Detection	AI algorithms analyze healthcare data to identify anomalies and patterns indicative of fraudulent activities.	(Li et al., 2018)
Revenue Optimization	AI analytics identify opportunities for revenue optimization, such as suggesting up coding or down coding opportunities.	(Bates et al., 2019; Chen et al., 2020)

By embracing AI in medical billing, healthcare organizations can unlock the potential for increased operational efficiency, improved financial outcomes, and ultimately, better patient care.. The traditional billing system involves a lot of manual documentation and paperwork, the paper claim is a time-taking process where coders entered each code individually in the printed forms (Figure 1). All the paper forms are then passed on to the medical billing organization and later to the payer, whereas AI Automation Boost Medical Billing Process improves the efficiency and efficacy of the billing and coding process, many healthcare companies are finding ways to simplify manual coding labor with AI applications (Figure 2). The emerging technology in AI is based on Computer Assisted Coding (CAC) which works on Machine Learning and Natural

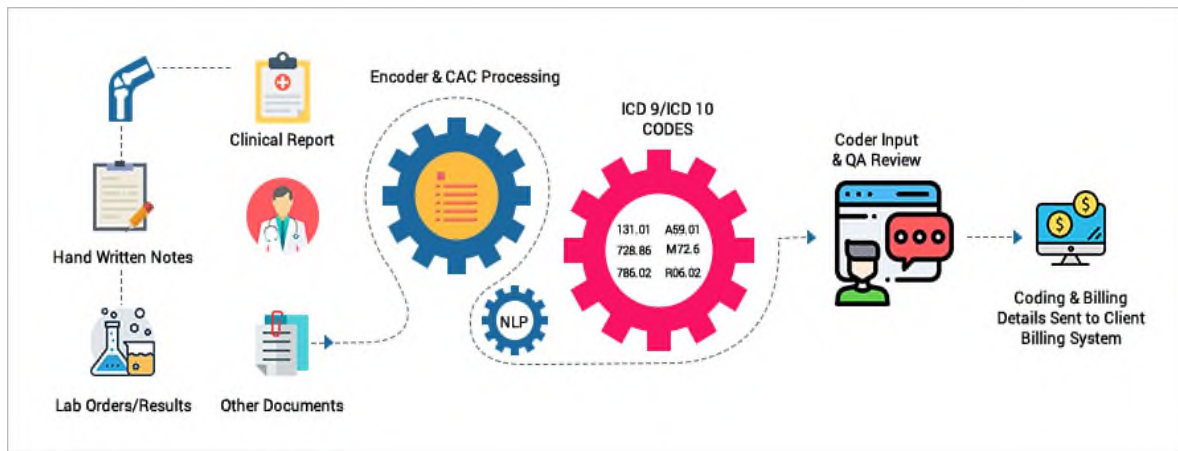
Language Processing (NLP). The CAC automatically identify and extract data from documents and insert into the system. The need of the hour is an automated web-based system that analyzes physician documentation for the text/treatment and automatically recognizes relevant medical codes. Beyond processing codes and high volumes of data, AI can significantly reduce the standard work hours and human error.





(source: <https://www.osplabs.com/insights/how-to-boost-medical-billing-business-using-artificial-intelligence/>)

Figure 1: Traditional Medical Billing & Coding Process Flow



(source: <https://www.osplabs.com/insights/how-to-boost-medical-billing-business-using-artificial-intelligence/>)

Figure 2: AI Automation Boost Medical Billing Process

The following are key areas where AI applications are transforming the landscape of medical billing:

a) *Automated Claims Processing*

Automated Claims Processing has emerged as a game-changing application of AI in the field of medical billing (Wang et al., 2019). The advent of AI-powered systems has revolutionized the claims processing workflow by significantly reducing the need for manual intervention and expediting the reimbursement process. Leveraging sophisticated machine learning algorithms, these AI systems have the capability to efficiently analyze vast amounts of claim data with remarkable speed and accuracy. By scrutinizing every aspect of the claims, including patient information, medical codes, procedures, and documentation, these AI-powered systems can swiftly identify errors or discrepancies that may otherwise go unnoticed. The utilization of AI technology in automating claims processing tasks not only helps in reducing billing errors but also plays a pivotal role in decreasing the processing time, thereby

improving the overall efficiency of the medical billing process. The advantages of automated claims processing through AI technology are multifold. Firstly, the automated systems can identify potential errors or discrepancies in real-time, preventing inaccuracies from being propagated through the claims submission process. This ensures that the claims submitted are accurate and complete, reducing the chances of rejections or delays in reimbursement. Additionally, the speed and efficiency of AI systems in analyzing and processing claims contribute to significant time savings. The reduction in processing time translates into faster reimbursements for healthcare providers, positively impacting their cash flow and financial stability.

Moreover, AI-powered claims processing systems continuously learn and adapt from historical data, allowing them to improve their accuracy and performance over time. The machine learning algorithms employed by these systems can detect patterns and trends in claim data, enabling them to make intelligent decisions and generate precise claims submissions.

This iterative learning process enhances the overall effectiveness and reliability of the claims processing workflow, benefiting both healthcare providers and payers. The utilization of AI in automating claims processing not only streamlines operations but also has a broader impact on the healthcare industry as a whole. By minimizing billing errors and expediting the reimbursement process, healthcare organizations can allocate their resources more efficiently, focusing on delivering quality patient care rather than navigating complex billing procedures. Moreover, the increased efficiency in claims processing contributes to cost savings for healthcare systems, allowing them to redirect funds towards essential healthcare initiatives and improvements.

#### b) Coding Assistance

Accurate and efficient medical coding plays a pivotal role in ensuring proper billing and reimbursement within the healthcare industry (Davenport et al., 2019). With the advent of AI technology, coding assistance has been revolutionized, providing medical coders with valuable support in their day-to-day tasks. AI algorithms, equipped with advanced Natural Language Processing (NLP) techniques, have the ability to analyze and interpret complex medical documents, extracting crucial information and suggesting appropriate codes based on the provided documentation. By leveraging NLP, AI systems can comprehend the context and nuances within medical records, including diagnoses, procedures, and treatments. These systems possess the capability to identify key terms, extract relevant details, and correlate them with an extensive database of medical codes. By doing so, AI algorithms can generate accurate and consistent coding suggestions, significantly reducing the burden on medical coders and minimizing the likelihood of human errors.

The integration of AI in coding assistance offers several advantages. Firstly, AI-powered coding assistance expedites the coding process, leading to enhanced productivity and efficiency. Medical coders can rely on AI algorithms to swiftly analyze vast volumes of documentation and generate coding suggestions in a fraction of the time it would take manually. This time-saving aspect is especially valuable in healthcare settings where there is a constant influx of patient records and a pressing need for timely billing processes. Moreover, AI-based coding assistance contributes to improved coding accuracy. The advanced algorithms can process intricate medical information and provide precise coding suggestions based on established coding guidelines and regulations. This accuracy helps in reducing coding-related errors, such as incorrect codes or missing information, which can lead to claim rejections and delayed reimbursement. By minimizing coding errors, healthcare organizations can

avoid potential financial losses and maintain compliance with coding standards.

#### c) Fraud Detection

Medical billing fraud poses a significant threat to healthcare organizations, resulting in substantial financial losses and jeopardizing the integrity of the billing process (Li et al., 2018). However, the advent of AI technology has revolutionized fraud detection by enabling sophisticated systems to analyze large volumes of billing data, detect patterns, and flag suspicious claims for further investigation. AI-based fraud detection systems employ powerful machine learning algorithms that can learn from historical data and identify anomalies or irregularities that may indicate fraudulent activities. By analyzing vast amounts of billing information, these systems can recognize patterns that may be indicative of fraudulent behavior, such as unusual billing patterns, excessive billing for certain procedures, or billing for services not rendered. The ability of AI algorithms to continuously learn and adapt enables them to stay up to date with evolving fraud schemes and refine their detection capabilities over time.

Moreover, the utilization of AI in fraud detection goes beyond the identification of known fraud patterns. Machine learning algorithms can uncover previously unidentified fraud schemes by detecting subtle deviations and anomalies in billing data. This capability is especially valuable in combating emerging and sophisticated fraud techniques that may evade traditional rule-based detection methods. By leveraging AI technology in fraud detection, healthcare organizations can significantly enhance their ability to identify and prevent fraudulent billing practices. The timely identification of fraudulent claims not only saves healthcare organizations from financial losses but also contributes to maintaining the integrity of the billing process. Furthermore, the implementation of AI-powered fraud detection systems can help in fostering a culture of compliance and accountability within the healthcare industry.

#### d) Revenue Optimization

Revenue optimization is a critical aspect of healthcare financial management, and AI tools have emerged as powerful allies in this endeavor (Chen et al., 2020). These tools have the capability to analyze vast amounts of billing and reimbursement data, providing valuable insights into coding trends, reimbursement patterns, and payer behaviors. By leveraging AI technology, healthcare organizations can optimize their billing strategies and enhance their revenue performance. AI algorithms can delve into historical billing and reimbursement data, extracting meaningful information and identifying areas for improvement. By uncovering patterns and trends, these algorithms can highlight coding practices that result in higher

reimbursement rates or identify specific procedures or services that yield optimal financial outcomes. This analysis helps healthcare organizations understand their revenue potential and make informed decisions to maximize their financial performance.

AI technology enables healthcare organizations to adapt to changing reimbursement policies and payer behaviors. The algorithms can monitor and analyze shifts in reimbursement patterns, identify emerging trends, and provide timely recommendations for adjusting billing strategies accordingly. This proactive approach ensures that healthcare organizations stay ahead of the curve and maximize their revenue potential, even in a dynamic healthcare landscape. By integrating AI for revenue optimization, healthcare organizations can improve their overall revenue cycle management. AI tools provide continuous monitoring and analysis of billing and reimbursement data, allowing organizations to identify and address potential bottlenecks, inefficiencies, or missed opportunities. This proactive approach helps streamline operations, reduce revenue leakage, and optimize the entire revenue cycle.

AI applications in medical billing offer significant potential to transform the efficiency, accuracy, and

financial performance of healthcare organizations. Through automated claims processing, coding assistance, fraud detection, and revenue optimization, AI technology enables streamlined workflows, improved accuracy, and enhanced revenue cycles. As healthcare systems continue to face challenges in medical billing, harnessing the power of AI can lead to more effective and sustainable billing processes.

### III. BENEFITS OF AI IN MEDICAL BILLING

The application of Artificial Intelligence (AI) in medical billing has the potential to transform the landscape of billing processes within healthcare organizations, offering numerous benefits and enhancing overall efficiency (Table 2). AI technology, with its advanced algorithms and automation capabilities, can revolutionize the way billing is performed, streamlining operations and optimizing financial outcomes (Table 2). The following paragraphs will explore the key advantages of utilizing AI in medical billing, shedding light on the significant impact it can have on healthcare organizations.

Table 2: Various Benefits of AI in Medical Billing

Benefits of AI in Medical Billing	Description
Increased Efficiency	AI automates and streamlines the billing process, reducing manual efforts and speeding up operations. (Smith & Johnson, 2018; Chen et al., 2020).
Improved Accuracy	AI algorithms analyze data and provide accurate coding suggestions, reducing coding errors (Chen et al. 2020; Char et al. 2018).
Reduced Billing Errors	AI systems identify discrepancies, patterns, and anomalies, minimizing billing errors and claim rejections (Smith & Johnson, 2018; Li et al., 2018).
Fraud Detection	AI algorithms analyze large volumes of data to detect fraudulent activities and patterns (Li et al., 2018; Gordon et al., 2020).
Revenue Optimization	AI analytics identify revenue optimization opportunities, such as up-coding/down-coding suggestions and charge capture improvements (Bates et al., 2019; Wang et al., 2019).
Enhanced Compliance	AI helps ensure compliance with coding guidelines, regulations, and ethical practices (Char et al., 2018; Kuo et al., 2020).

#### a) Increased Efficiency

The integration of AI technologies in medical billing brings forth a remarkable advantage in terms of increased efficiency within healthcare organizations (Wang et al., 2019). By harnessing the power of machine learning algorithms and automation, AI systems have the ability to automate manual and time-consuming tasks that are inherent to the billing process. Tasks such as claims processing and coding, which traditionally require significant human effort and time, can now be executed swiftly and accurately through the assistance of AI. With the implementation of AI-powered

automation, the billing workflow experiences a substantial acceleration, resulting in reduced processing time and enhanced overall efficiency (Wang et al., 2019). By eliminating the need for manual intervention in repetitive tasks, healthcare professionals can redirect their valuable time and expertise towards more complex and critical aspects of their work. This not only improves productivity within the billing department but also allows healthcare professionals to focus on delivering quality patient care and engaging in activities that require their specialized skills.

### b) *Improved Accuracy*

The utilization of AI-powered systems in medical billing brings forth a transformative advantage in terms of improved accuracy, ensuring precision and adherence to complex coding systems and reimbursement guidelines (Davenport et al., 2019). Medical billing processes necessitate a thorough understanding of intricate coding systems and the ability to navigate through complex reimbursement guidelines accurately. By leveraging AI technology, healthcare organizations can significantly enhance the accuracy of their coding and claims submission processes (Davenport et al., 2019). AI-powered systems possess the capability to analyze extensive clinical documentation, extracting pertinent information, and suggesting appropriate codes based on the specific case at hand. This intelligent analysis helps reduce the chances of coding errors, ensuring that the billing process is carried out with the utmost precision and attention to detail.

### c) *Reduced Billing Errors*

The integration of AI technologies in medical billing brings about a remarkable advantage in terms of reducing billing errors, a critical factor that can have substantial implications for healthcare organizations (Li et al., 2018). Billing errors can result in claim denials, delays in reimbursement, and ultimately, financial losses. Recognizing the significance of accurate billing, AI-powered systems play a pivotal role in identifying potential errors or discrepancies within claims submissions. By leveraging advanced algorithms and machine learning capabilities, AI technologies thoroughly analyze claims data to identify any potential errors or inconsistencies (Li et al., 2018). This proactive approach enables AI systems to flag problematic claims for further review and rectification before submission, significantly minimizing the occurrence of billing errors. Through early error detection and rectification, healthcare organizations can effectively reduce the likelihood of claim rejections and subsequent financial losses, ensuring a more streamlined and efficient billing process.

### d) *Fraud Detection*

Within the healthcare industry, medical billing fraud presents a significant challenge that can lead to severe financial repercussions. Recognizing the gravity of this issue, the integration of AI systems offers a powerful tool for combating fraudulent practices and ensuring the integrity of the billing process (Chen et al., 2020). By leveraging sophisticated machine learning algorithms and anomaly detection techniques, AI systems possess the capability to analyze vast volumes of billing data, detect patterns, and identify suspicious claims that warrant further investigation. Through the utilization of AI technology, healthcare organizations can effectively detect fraudulent billing practices, mitigating

financial losses and protecting their financial interests (Chen et al., 2020). The ability of AI systems to uncover patterns and anomalies in billing data empowers healthcare organizations to proactively identify potential instances of fraud, enabling timely intervention and investigation. By leveraging the power of AI, healthcare organizations can safeguard the integrity of the billing process, maintaining transparency and accountability within their financial operations.

### e) *Revenue Optimization*

The analysis of billing data plays a crucial role in revenue optimization within healthcare organizations (Chen et al., 2020). AI tools offer a data-driven approach that enables comprehensive analysis of coding trends, reimbursement patterns, and payer behaviors, providing valuable insights for enhancing financial outcomes. Through the application of AI technology, healthcare organizations can identify revenue optimization opportunities that may have otherwise gone unnoticed. By leveraging AI tools for revenue optimization, healthcare organizations can enhance their revenue cycle management, improving their financial performance (Chen et al., 2020). The data-driven insights provided by AI systems empower healthcare professionals to make informed decisions regarding coding, billing strategies, and payer negotiations. By maximizing their understanding of coding trends and reimbursement patterns, healthcare organizations can implement targeted strategies to optimize their revenue streams and improve their financial stability.

### f) *Enhanced Compliance*

Adherence to complex regulations and payer guidelines is a fundamental aspect of the medical billing process. AI systems offer valuable support in ensuring compliance by automatically updating coding guidelines, regulatory changes, and reimbursement policies (Wang et al., 2019). This automation feature enables healthcare organizations to stay up-to-date with the latest requirements, reducing the risk of compliance violations and associated penalties. The integration of AI technology in medical billing aids healthcare organizations in maintaining compliance with evolving regulations, enhancing their ability to navigate the complex landscape of coding and reimbursement (Wang et al., 2019). By automating compliance-related tasks and providing real-time updates, AI systems minimize the likelihood of errors or oversights that could lead to compliance violations. This comprehensive approach ensures that billing practices align with the latest industry standards, safeguarding the reputation and financial well-being of healthcare organizations.

The integration of AI in medical billing offers significant benefits that enhance the efficiency, accuracy, and financial performance of healthcare organizations. By automating tasks, improving accuracy, reducing errors, detecting fraud, optimizing



revenue, and ensuring compliance, AI technology holds great potential in transforming medical billing practices and streamlining revenue cycle management.

#### IV. CHALLENGES AND ETHICAL CONSIDERATIONS

While the integration of Artificial Intelligence (AI) in medical billing holds great promise, there are several challenges and ethical considerations that need to be addressed to ensure responsible and effective implementation. The following are key challenges and ethical considerations associated with AI in medical billing:

##### a) *Data Privacy and Security*

The utilization of AI technology in medical billing necessitates access to and analysis of extensive amounts of sensitive patient data, making data privacy and security crucial considerations (Bates et al., 2019). Healthcare organizations must prioritize the implementation of robust data privacy measures to protect patient confidentiality and comply with regulatory requirements. This entails adopting stringent security protocols, employing encryption techniques, and establishing secure systems to safeguard patient information throughout the billing process. To maintain data privacy, healthcare organizations must also ensure compliance with relevant regulations, such as the Health Insurance Portability and Accountability Act (HIPAA) in the United States, which sets standards for protecting patient data. By adhering to these regulations and implementing comprehensive data protection measures, healthcare organizations can mitigate the risk of data breaches and uphold patient trust.

##### b) *Bias and Fairness*

While AI algorithms offer immense potential in medical billing, it is essential to address the potential for bias that may arise during their deployment (Obermeyer et al., 2019). Bias can manifest through various means, including biased training data or algorithmic design. To mitigate bias and promote fairness in billing processes, it is imperative to ensure that AI systems are trained on diverse and representative datasets, encompassing a wide range of patient demographics and healthcare contexts. Rigorous testing and validation processes should be employed to identify and rectify any biases present in AI algorithms (Obermeyer et al., 2019). This includes evaluating the impact of AI-driven billing decisions on different patient populations and monitoring for any disparities that may arise. By continuously monitoring and addressing bias, healthcare organizations can strive for fair and equitable billing practices, promoting trust and confidence among patients and stakeholders.

##### c) *Transparency and Explain-ability*

The complex nature of AI algorithms used in medical billing can pose challenges in terms of transparency and explain-ability (Char et al., 2018). Lack of transparency in AI systems can undermine stakeholders' understanding of the billing decisions made by these systems, potentially leading to distrust or resistance. Therefore, it is crucial to develop AI models that prioritize transparency and provide clear insights into the factors influencing billing decisions. To enhance transparency, healthcare organizations should strive to develop explainable AI models that offer insights into how billing decisions are made (Char et al., 2018). This involves employing interpretable machine learning techniques, such as rule-based approaches or model-agnostic explanations, which can provide transparent explanations for the reasoning behind billing decisions. By promoting transparency and explain-ability, healthcare organizations can foster trust, facilitate collaboration between AI systems and healthcare professionals, and ensure that billing processes align with ethical and legal standards.

##### d) *Legal and Regulatory Compliance*

The integration of AI in medical billing requires healthcare organizations to navigate and comply with existing legal and regulatory frameworks (Bates et al., 2019). It is imperative for organizations to ensure that their AI systems adhere to laws and regulations governing billing practices, patient rights, and data protection. This includes compliance with regulations such as HIPAA in the United States, which safeguards patient data privacy and security. To ensure compliance, healthcare organizations should establish robust monitoring and audit mechanisms (Bates et al., 2019). Regular assessments should be conducted to evaluate the AI systems' compliance with relevant laws and regulations. This proactive approach helps identify any potential risks or vulnerabilities in the billing process and enables timely corrective measures to address them.

##### *Integration and Adoption:*

Integrating AI into existing medical billing systems can present technical challenges and organizational hurdles (Kuo et al., 2020). Organizations may encounter obstacles such as interoperability issues with legacy systems, difficulties in data integration, and resistance to change from staff members. To facilitate successful adoption, seamless integration of AI technology is necessary. Healthcare organizations should prioritize comprehensive training programs to equip staff members with the necessary skills to work with AI systems effectively (Kuo et al., 2020). Training initiatives should address both technical aspects, such as utilizing AI tools and interpreting their outputs, as well as addressing any concerns or misconceptions surrounding AI technology. By promoting a culture of continuous learning and providing adequate support,

healthcare organizations can foster a smooth transition to AI-powered medical billing systems.

e) *Professional Responsibility*

While AI can automate and optimize various aspects of medical billing, it is crucial to uphold professional responsibility and maintain human oversight (Char et al., 2018). Healthcare professionals must have a clear understanding of the limitations of AI systems and their potential implications on billing decisions. They bear the responsibility to monitor the performance of AI systems, validate their outputs, and ensure the accuracy and ethical considerations of billing decisions. By embracing a collaborative approach, healthcare professionals can actively engage with AI technology, critically evaluate its outputs, and provide necessary interventions when needed (Char et al., 2018). This human-AI partnership ensures that the billing process aligns with professional standards and ethical considerations. It also fosters accountability, trust, and transparency in the use of AI technology in medical billing.

The integration of AI in medical billing presents challenges and ethical considerations that must be carefully addressed. Data privacy, fairness, transparency, legal compliance, integration, and professional responsibility are crucial aspects that require attention. By addressing these challenges and considering ethical implications, healthcare organizations can harness the benefits of AI in medical billing while ensuring responsible and effective implementation.

V. GLOBAL PERSPECTIVES AND FUTURE DIRECTIONS

The integration of Artificial Intelligence (AI) in the medical billing industry has the potential to transform healthcare systems worldwide. Several global perspectives and future directions emerge as organizations embrace AI technology to optimize billing processes and enhance financial performance (Table 3).

Table 3: Summary of a Few Global Perspectives and Future Directions.

Global Perspectives and Future Directions	Information
Improved Efficiency and Cost Savings	AI implementation in healthcare has the potential to improve operational efficiency, reduce administrative burden, and lower costs (Bresnick, 2020).
Enhanced Revenue Cycle Management	AI technologies can streamline revenue cycle management by automating billing and coding processes, reducing errors, and improving claims management (Winkler, 2020).
Global Adoption and Standardization	There is a growing trend towards global adoption and standardization of AI in healthcare, with organizations like the WHO and European Commission providing guidelines and recommendations (Tang & Kho, 2020).
Collaborative Ecosystems	AI encourages collaborative ecosystems where healthcare professionals, researchers, and technology experts work together to develop and deploy innovative AI solutions (World Health Organization, 2019).
Advanced Analytics and Predictive Modeling	Advanced analytics and predictive modeling using AI can enable more accurate diagnoses, personalized treatment plans, and proactive healthcare interventions (Topol, 2019).
Ethical Frameworks and Regulatory Guidelines	Ethical frameworks and regulatory guidelines are being developed to address the responsible and ethical use of AI in healthcare, ensuring patient privacy, consent, and fairness (Tang & Kho, 2020).
Continuous Learning and Adaptability	AI systems that can continuously learn and adapt to new data and information can improve diagnostic accuracy, treatment efficacy, and patient outcomes (European Commission, 2018).

a) *Improved Efficiency and Cost Savings*

AI-driven medical billing solutions offer the promise of streamlining workflows, automating tasks, and reducing administrative burdens (Patel et al., 2020).

By leveraging AI algorithms and automation, healthcare organizations can experience improved efficiency, resulting in significant cost savings. AI technology minimizes labor-intensive processes, allowing staff

members to focus on more complex and critical aspects of their work. By automating repetitive tasks, AI frees up valuable time, reduces human error, and enables healthcare professionals to allocate their expertise more effectively, ultimately leading to increased productivity and cost savings. AI technology plays a vital role in reducing billing errors (Patel et al., 2020). Billing errors can lead to claim denials, delayed reimbursements, and financial losses for healthcare organizations. AI systems can identify potential errors or discrepancies in claims submissions, flagging them for review before submission. This proactive error detection helps minimize billing errors, ultimately reducing the likelihood of claim rejections and optimizing revenue generation.

#### b) *Enhanced Revenue Cycle Management*

AI empowers healthcare organizations to enhance their revenue cycle management by analyzing billing data, identifying trends, and predicting revenue outcomes (Kuo et al., 2020). With the ability to process vast amounts of data quickly and efficiently, AI algorithms can provide valuable insights into coding trends, reimbursement patterns, and payer behaviors. By leveraging these insights, organizations can proactively identify opportunities for revenue enhancement, fine-tune their billing strategies, and make informed decisions to maximize financial performance. The predictive capabilities of AI algorithms enable healthcare organizations to anticipate revenue patterns, optimize pricing structures, and forecast potential revenue gaps or challenges (Kuo et al., 2020). This data-driven approach helps organizations stay ahead of market trends, adapt to changing reimbursement models, and make strategic decisions that lead to improved financial outcomes.

#### c) *Global Adoption and Standardization*

The adoption of AI in medical billing is experiencing a worldwide trend, with healthcare organizations across different regions recognizing its potential in streamlining billing processes (Gordon et al., 2020). This global adoption calls for the development of standards and guidelines to ensure interoperability and harmonization among diverse healthcare systems. Establishing common frameworks and protocols enables seamless integration of AI technologies, facilitates data exchange, and promotes collaboration on an international scale. By fostering global adoption and standardization, healthcare organizations can collectively leverage the benefits of AI in medical billing, regardless of geographical boundaries.

#### d) *Collaborative Ecosystems*

The implementation of AI in medical billing encourages the formation of collaborative ecosystems involving various stakeholders, including healthcare providers, payers, technology vendors, and regulatory bodies (Kuo et al., 2020). These collaborative efforts

create a supportive environment for knowledge sharing, data exchange, and the development of best practices. By working together, organizations can address common challenges, pool resources, and share insights gained from implementing AI in their billing processes. Through collaborative ecosystems, stakeholders can collectively drive innovation, share experiences, and shape the future of AI in the medical billing industry. The active participation of diverse stakeholders fosters a comprehensive understanding of the technology's potential and promotes its responsible and effective implementation.

#### e) *Advanced Analytics and Predictive Modeling*

The future of AI in medical billing lies in the realm of advanced analytics and predictive modeling (Patel et al., 2020). AI systems possess the capability to analyze vast amounts of billing data, identify patterns, and generate predictive models for improved revenue forecasting and risk assessment. By harnessing these advanced analytics, healthcare organizations can make data-driven decisions, optimize billing strategies, and maximize financial outcomes. Predictive modeling allows organizations to anticipate revenue fluctuations, identify potential risks or opportunities, and allocate resources effectively. By leveraging AI-driven analytics, healthcare organizations can gain valuable insights into billing patterns, payer behaviors, and market trends, enabling them to adapt and strategize proactively.

#### f) *Ethical Frameworks and Regulatory Guidelines*

With the increasing prevalence of AI in medical billing, the development of ethical frameworks and regulatory guidelines becomes paramount (Char et al., 2018). These frameworks need to address key ethical considerations, including privacy, fairness, bias, transparency, and accountability. They should provide guidance on responsible AI use, ensuring that patient data is protected, billing decisions are unbiased and fair, and the decision-making process of AI systems is transparent and explainable. Collaboration among regulatory bodies on a global scale is essential to establish comprehensive guidelines that promote ethical AI practices across the medical billing industry. By adhering to ethical frameworks and regulatory guidelines, healthcare organizations can ensure that AI is utilized in a manner that respects patient rights, maintains trust, and upholds ethical standards.

#### g) *Continuous Learning and Adaptability*

One of the significant advantages of AI algorithms is their ability to continuously learn from new data and adapt to evolving billing regulations and payer requirements (Kuo et al., 2020). This adaptability ensures that AI systems stay up to date with the latest coding guidelines, regulatory changes, and reimbursement policies. By continuously learning and adapting, AI systems can make accurate and compliant

billing decisions, reducing the risk of errors and improving overall efficiency. To harness the full potential of AI in medical billing, organizations should invest in technologies that have the capability to evolve and adapt over time. This enables them to leverage the latest advancements in AI and ensure that their billing processes align with evolving industry standards.

The global perspectives and future directions of AI in the medical billing industry are promising. The widespread adoption of AI technology, along with the implementation of enhanced revenue cycle management practices, collaborative ecosystems, advanced analytics, ethical frameworks, regulatory guidelines, and continuous learning, will shape the future of medical billing. By embracing these opportunities, healthcare organizations can unlock the full potential of AI to optimize billing processes, improve financial performance, and deliver efficient and effective healthcare services worldwide. The integration of AI in medical billing holds the potential to revolutionize the industry, enhance operational efficiency, and ultimately contribute to better patient care outcomes. Through responsible and strategic implementation, organizations can navigate the challenges and seize the opportunities presented by AI, leading to a transformative impact on the medical billing landscape.

## VI. CONCLUSION

In conclusion, the transformative potential of artificial intelligence (AI) in medical billing is undeniable. It presents healthcare systems worldwide with a remarkable opportunity to revolutionize their operations, improve financial outcomes, and enhance the overall patient experience. By embracing AI technologies, healthcare organizations can unlock a host of benefits, including increased efficiency, enhanced accuracy, and improved sustainability in the billing process. AI brings forth a range of advanced capabilities that can streamline and automate various aspects of medical billing. From automating data entry and coding to detecting and preventing billing errors, AI systems can significantly reduce the administrative burden on healthcare professionals. This, in turn, allows medical staff to focus more on delivering quality care to patients. AI-powered billing systems can help healthcare organizations optimize revenue cycles by identifying potential bottlenecks, reducing claim denials, and improving the efficiency of payment processes. By leveraging AI algorithms and machine learning techniques, medical billing systems can analyze vast amounts of data, identify patterns, and make accurate predictions. This empowers organizations to make informed decisions, allocate resources effectively, and ultimately improve their financial sustainability. However, as the integration of AI in medical billing progresses, it is crucial to address certain challenges. Ethical

considerations must be taken into account to ensure patient privacy, data security, and fairness in billing practices. Organizations need to establish robust protocols and governance frameworks to protect sensitive information and maintain transparency throughout the billing process. Promoting widespread adoption of AI in medical billing requires collaboration among various stakeholders, including healthcare providers, policymakers, and technology developers. Investments in infrastructure, education, and training are necessary to equip healthcare professionals with the skills and knowledge required to leverage AI effectively. By fostering a culture of innovation and collaboration, healthcare systems can fully harness the potential of AI in medical billing.

As AI continues to evolve, its role in medical billing is poised for even greater transformation. Advancements in natural language processing, predictive analytics, and deep learning will further improve the accuracy and efficiency of billing systems. As a result, healthcare organizations will be able to optimize their revenue cycles, reduce costs, and provide more personalized and affordable care to patients. The integration of AI in medical billing holds immense promise for healthcare systems globally. By embracing AI technologies, addressing challenges, and promoting widespread adoption, healthcare organizations can revolutionize their billing processes and pave the way for a more efficient, accurate, and sustainable future in healthcare.

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# Feelings and Religiosity Interlacing in the Face of Breast Cancer Diagnosis: A Netnographic Study

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**Abstract-** Globally, female breast cancer exceeded lung cancer as the most commonly diagnosed cancer, with an estimated 2.3 million new yearly cases. This pathology produces profound changes in women's lives. Religiosity and spirituality are essential resources at diagnosis and when making therapeutic decisions. We aimed to analyze women's feelings in the face of breast cancer diagnosis and faith as an ally in confronting the disease. Netnographic research was conducted in February 2023 on the "Oncoguia" website from testimonials in the "Patient Space" section. We analyzed testimonials of women diagnosed with (healed or in treatment) breast cancer who mentioned in writing words about faith, religiosity, or spirituality. Two researchers read and analyzed the reports, organizing them into two themes: "Diagnosis and explosion of feelings" and "Faith: the greatest ally in the fight against cancer". We observed that multiple feelings emerge at diagnosis, including despair and uncertainties. In this process, faith is vital for deponents to favor the quality of life and confront breast cancer.

**Keywords:** breast cancer, faith, spirituality, religiosity, netnographic study.

**GJMR-K Classification:** LCC: RC280.B8



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# Feelings and Religiosity Interlacing in the Face of Breast Cancer Diagnosis: A Netnographic Study

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**Abstract-** Globally, female breast cancer exceeded lung cancer as the most commonly diagnosed cancer, with an estimated 2.3 million new yearly cases. This pathology produces profound changes in women's lives. Religiosity and spirituality are essential resources at diagnosis and when making therapeutic decisions. We aimed to analyze women's feelings in the face of breast cancer diagnosis and faith as an ally in confronting the disease. Netnographic research was conducted in February 2023 on the "Oncoguia" website from testimonials in the "Patient Space" section. We analyzed testimonials of women diagnosed with (healed or in treatment) breast cancer who mentioned in writing words about faith, religiosity, or spirituality. Two researchers read and analyzed the reports, organizing them into two themes: "Diagnosis and explosion of feelings" and "Faith: the greatest ally in the fight against cancer". We observed that multiple feelings emerge at diagnosis, including despair and uncertainties. In this process, faith is vital for deponents to favor the quality of life and confront breast cancer.

**Keywords:** breast cancer, faith, spirituality, religiosity, netnographic study.

## I. INTRODUCTION

Globally, Female breast cancer has exceeded lung cancer as the most commonly diagnosed cancer, with an estimated 2.3 million new yearly cases (11.7%), followed by lung cancer (11.4%) (Sung et al., 2021).

Reproductive/hormonal and lifestyle-related aspects are among the risk factors. The former are early menarche, advanced menopause, age above 50, children, less breastfeeding, menopause hormone therapy, and the use of oral contraceptives. Alcohol intake, overweight, and physical inactivity are among the lifestyle-related factors. (Brinton et al., 2018).

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Despite the growing incidence, few preventive measures have been implemented besides the identification and surveillance of high-risk women genetically identified with BRCA1 and BRCA2 mutations (Rosenberg et al., 2016). A recent study observed that the religiosity-spirituality binomial could support and motivate women to seek a healthier life (Mirabi et al., 2022). However, this theme has been the subject of much research analyzing its importance in breast cancer diagnosis. One work noted that religiosity and spirituality assist in facing the disease, increasing the strength and hope toward healing for patients and their families (Falcão et al., 2022).

One study investigated the influence of faith and religiosity in patients diagnosed with breast cancer by analyzing spiritual well-being and the association of spirituality/religiosity and their practices with the acceptance of diagnosis, treatment adherence, and new perspectives. It noted that faith and religiosity are essential in confronting cancer. For this analysis, the authors used the Spiritual Well-Being Scale (SWBS), which refers to a bond of personal affinity with God or a supreme force. Patients also reported that only faith and religious practices make acceptance of diagnosis more manageable, and the most relevant points cited by patients were adequate adherence to treatment with positive recovery and positive outcome perspectives for their lives (Nakane, 2017).

Another research evaluated the association between religiosity, depression, and pain in breast cancer patients in 115 women from a radiotherapy unit, using the questionnaires: Santa Clara Strength of Religious Faith (Sherman et al., 2001), the Center for Epidemiological Studies Depression Scale (Hann et al., 1999) and the Visual Pain Scale of Goodwin et al. (2001). Religiosity was associated with a significantly lower prevalence of depression, and the latter was also associated with a higher pain level. Mastectomized patients of the high religiosity group were less depressed (Aukst-Margetić et al., 2005).

Brandão et al. (2021) conducted a cross-sectional study in Porto Alegre, Rio Grande do Sul, Brazil, with 108 women with cancer, and found a positive association between spirituality/religiosity and

quality of life in women with breast cancer subjected to radiotherapy.

One hundred fifty women diagnosed with breast cancer were evaluated after surgery for religiosity/spirituality, faith strength, belief in God, private and public practices, spiritual involvement, perceived spiritual support, and positive and negative religious coping strategies. 'Feeling punished and abandoned by God' corresponded to 5% of the variation in increased anxiety levels and was a significant independent predictor of depressed mood, explaining 4% of the variation (Thuné-Boyle et al., 2013).

Given the above, we question, 'What are the feelings expressed by women who receive a breast cancer diagnosis, and how does faith help them face the disease?'

Thus, this article aims to analyze women's feelings in the face of breast cancer diagnosis and faith as an ally in coping with the disease.

## II. METHODS

### a) Model of the Research

This netnographic research was conducted in February 2023 on the website of the "Oncoguia" Institute, which is a non-governmental organization that maintains, among its initiatives, an informative and interactive portal intended for the quality of life of people affected by cancer, their family members, and friends, health professionals, support network, and other interested parties. Data search was performed in the "Testimonials" of the "Patient Space" section. Testimonials from people with several types of cancer are available in this virtual environment. They are based on the following tag: "Tell us about your experience, leave your report, or simply fade! Help other people living the same story as you" (Oncoguia, 2022). The testimonials are made available with the deponent's name or nickname and a sentence the organizers call "review", which usually summarizes the posted text's main idea.

### b) Research Steps

The steps of this netnographic research were as follows: selecting the site to be researched (Oncoguia) and defining the target audience (testimonials of women with a breast cancer diagnosis) and data of interest (reviews that presented testimonials with an approach on spirituality/religiosity). Initially, a visit was made to the Oncoguia website to read the testimonials posted on breast cancer. Then, we observed the reviews posted after the names or nicknames of the women who had left their testimonials on the site.

### c) Sample

Testimonials of women diagnosed with (cured or undergoing treatment) breast cancer and who, right in the review, contained word(s) or expression(s) that

referred to faith, religiosity, or spirituality were considered for analysis, such as: "God", "thanks to God", "I have faith in God", "spirituality", "Jesus", and "faith". Testimonials that did not include any of these terms in the review were excluded, even considering that there could be some mention of "spirituality/religiosity" directly or in which the words mentioned were used in a figurative sense throughout the report.

Thus, we identified 17 written texts (narrative excerpts) aligned with the research question, which were considered for analysis.

### d) Data Analysis

Two researchers read the testimonials, followed by the analysis and organization of the highlighted excerpts by the similarity of ideas, resulting in the following thematic categories: "Diagnosis and explosion of feelings" and "Faith: the greatest ally in the struggle against cancer". The content analysis method in the thematic modality was adopted for this purpose through the following stages: pre-analysis, material exploration, processing of the results, and interpretation (Minayo et al., 2013). We adopted Minayo's interpretive magnifying glass (Minayo et al., 2013).

### e) Ethical Aspects

Even knowing that access to the testimonials is freely available to the community, letters followed by numbers were adopted to ensure their anonymity, where DM1 meant the testimonial of Woman 1, following the same rule for the next woman. As a result, this investigation did not require the Research Ethics Committee's opinion.

## III. RESULTS AND DISCUSSION

### a) Diagnosis and Explosion Of Feelings

Patients describe the moment of diagnosis as a journey affected by different medical stages. Each treatment phase has features that condition the experiences, triggering specific physical, emotional, cognitive, and social processes. (Ciria-Suarez et al., 2021).

A study with 339 women diagnosed with breast cancer showed the following characteristics of the sample: mean age of 58.9 years, 19.8% with higher education, 38.9% working, 64.9% married or living with a partner, 50.1% anxiolytic or antidepressant users, 34.9% were overweight, and 17.7% were smokers. In this population, the Quality of Life questionnaire of the European Organization for Research and Treatment of Cancer (EORTC) (Sprangers, 1996; Aaronson, 1993) was applied before and after treatment, with higher anxiety observed in married women, unemployed women, women on anxiolytic medication, and those with swollen breasts and advanced disease. It identified that anxiety decreases significantly between pre- and post-treatment (Villar et al., 2017)

*I did all the tests within 15 days, and the diagnosis was confirmed since I didn't believe what I was hearing, and I thought I couldn't resist all that treatment because I have epilepsy and take three prescription drugs. (DM3)*

*I went into surgery a little dizzy after being diagnosed with breast cancer, without yet assimilating what was happening. It seemed like a dream (or a nightmare). (DM7)*

*(...) a small, benign-looking nodule appeared, but even so, she asked me to do a biopsy, and that was when I received the result in September. I received the diagnosis calmly at the time, but when I left the office, the penny dropped, and I cried a lot (...). (DM8)*

*(...) my reaction then was to cry and curse. Countless things go through your head when you receive a cancer diagnosis. I immediately thought I would die because we hear so many bad things about this disease when we are not involved. At that moment, doubts, uncertainties, and fear plagued my mind. (DM13)*

*I received the diagnosis of breast cancer back in September 2016. It is scary, my God! It hurts to remember even today. (DM14)*

Falcão et al. (2022) observed that the negative feelings analyzed in the reports are often mitigated when women have greater spirituality and religiosity. Some testimonials express that faith, belief in God, and inner strength will help them overcome the disease, besides the importance of the network of friends, family, and therapeutic groups they participate in at the health units where they are or were treated.

Ciria-Suarez et al. (2021) state that the support network is essential in all cases. The family appears as one of the groups most involved in the illness process. Partners are fundamental, as the testimonials reveal several possibilities, ranging from the feeling of having had great support to the lack of attention and understanding that, in many situations, makes the relationship closer or terminates it. This support is essential given their reactions during treatment. *"I had many undesirable reactions, uncertainties, crying, but also a lot of support, affection, good humor, balance, learning (...)" (DM16).*

The moment of diagnosis leads to women having different experiences, ranging from euphoria regarding the discovery to despair and uncertainties, which characterizes an actual, primarily damaging "explosion of feelings". Family support, friends, and the entire support network are essential aspects to ease the emerging feelings in this context.

#### **b) Faith: The Greatest Ally in the Fight Against Cancer**

Most of the Brazilian population has some religiosity; faith is a strong ally in cancer treatment.

A survey conducted with cancer patients in Turkey points to the importance of religion as a

considerable component of the dominant culture, and it is understandable that "love for the family" seems to have played a role in its existential meaning, strengthening the confrontation of the problem (Ahmadi et al., 2019).

These findings reverberate in how people react and pronounce themselves regarding the disease. *"2% chance and still it [breast cancer] found me... Not for long! I have faith in my healing!" (DM1)*

Religiosity and spirituality usually connect the individual and a holy being or supernatural force. Religiosity is defined as how individuals express their spirituality through values, beliefs, and rituals (Inoue & Vecina, 2017). Spirituality, in turn, is represented by a belief system encompassing subjective aspects, resulting in vitality and meaning to life events, and one of the ways spirituality can be religion. (Saad et al., 2001).

A survey carried out through a cross-sectional analysis of Alberta's Tomorrow Project in Canada points out that the analysis of the connection between religion and health considers the following as important aspects: social support and coping resources, generating positive emotions and self-perceptions, and encouraging lifestyle choices that confer health benefits. All these aspects together indicate that the religiosity/spirituality relationship can provide additional motivation for women to acquire health-seeking behaviors (Mirabi et al., 2022).

A qualitative study conducted in Northeast Brazil to analyze the spiritual experience of women diagnosed with breast cancer and reflections on spirituality in healthcare observed that spirituality was a source of support during the breast cancer diagnosis. Some patients considered the spiritual dimension not only as a new purpose in life but also as a way of finding it and for other patients. From this perspective, spirituality was intrinsically linked to the religious context and belief in God, revealing itself as a source of hope, resignation, adoration, and gratitude for life (Leão, 2021).

In the participants' testimonials, God's relationship with healing is always present, and how religiosity/spirituality provides greater strength in the belief in the positivity of the treatment. Victory (cure) is certain even with all the difficulties, according to the participants who have faith.

*I have a triple-positive wonderful God for a triple-negative breast cancer. (DM2)*

*God does not give us a greater burden than we can carry. (DM4)*

*Thanks be to God who gave me victory! (DM8)*

*Allied to psychotherapy, I realized that no situation in life, diagnosis, or illness is a death sentence and that I should (and will) fight until the end, when God, only God, can sentence me to leave the stage of life! (DM11)*



(...) *I am at peace; my victory is guaranteed. My faith grows, and my God has not abandoned me!* (DM14)

The power of spirituality/religiosity in the coping processes used by people with (breast and prostate) cancer compared to those without cancer was studied by Arbinaga et al. (2021) in a sample of 445 Spanish participants (160 with cancer and 285 without). The authors observed a significant interaction between cancer and group belief, with religion, humor, and disconnection as coping strategies. The belief group scored significantly higher on active coping, planning, social support, and self-blame. Spirituality positively uses strategies such as religiosity, positive reappraisal, and acceptance.

The "positive" acceptance of cancer is seen as a life mission, and spirituality as an expression of identity and purpose through one's history and illness. Religious faith relieves suffering when the patient and family see that the disease is severe. (Aquino & Zago, 2007).

*"Cancer does not only harm us. I, for one, benefited much more as I became a much better person and drew closer to God more than three times as much as before."* (DM15)

Religiosity provides opportunities to re-signify a problematic situation, a path to access resources, and remain in the field of ego resilience. The construction of a religious meaning system can also be remembered, emphasizing religion's meaning-making and guiding function. (Szałachowski & Bogucka, 2023).

*"I owe it to God because it was in Him that I put my faith that everything would happen according to His desire."* (DM17).

Brandão et al. (2021) investigated the association between spirituality/religiosity and the quality of life of women with breast cancer undergoing radiotherapy. They found a positive association between spirituality/religiosity and the quality of life of women with breast cancer undergoing radiotherapy. Spirituality is a preponderant factor in the quality of life in oncological diseases, increasing the ability to cope with diseases, and the resilience of patients and caregivers (Brandão et al., 2021).

#### IV. CONCLUSION

This is the second article of a research project involving religiosity and spirituality in breast cancer. In the present study, analyzing the set of feelings emerging before breast cancer diagnosis, we observed that religious faith is vital for coping with the disease despite fear, despair, and uncertainties, favoring the treatment and quality of life.

Given the above, further studies are suggested to deepen the theme and inspire integrative health practices that consider spirituality/religiosity in therapeutic processes in oncology to offer more

significant backing to patients and their support network, be it family or not.

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## A Case Report of Management of Intestinal Obstruction in a Patient with Situs Inversus Abdominalis

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**Abstract-** Situs inversus totalis is a rare congenital malformation that results in mirror positioning of the thoracic and abdominal organs. Situs inversus abdominalis is a right-left inversion limited to the abdomen; The association of situs inversus with intestinal band occlusion is infrequent; We report a case of acute intestinal obstruction associated with situs inversus abdominalis, the diagnosis was confirmed by abdominopelvic CT scan, and the treatment consisted of a gallbladder resection with anastomosis, with good postoperative results.

**Keywords:** *situs inversus abdominalis, congenital anomaly, Intestinal obstruction, Surgery.*

**GJMR-K Classification:** LCC code: RD543



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**Abstract-** Situs inversus totalis is a rare congenital malformation that results in mirror positioning of the thoracic and abdominal organs. Situs inversus abdominalis is a right-left inversion limited to the abdomen; The association of situs inversus with intestinal band occlusion is infrequent; We report a case of acute intestinal obstruction associated with situs inversus abdominalis, the diagnosis was confirmed by abdominopelvic CT scan, and the treatment consisted of a gallbladder resection with anastomosis, with good postoperative results.

**Keywords:** situs inversus abdominalis, congenital anomaly, Intestinal obstruction, Surgery.

## I. INTRODUCTION

Situs inversus totalis is a rare autosomal recessive condition (1) (1 in 8,500) (2-3) that results in mirror positioning of the thoracic and abdominal organs.; Situs inversus abdominalis, also known as situs inversus with levocardia or left-sided heart, is a condition with right-left inversion limited to the abdomen (4-5). SIA is a recognized cause of obstruction in the pediatric population due to intestinal abuse; Despite, this reason of acute surgical emergencies in adults is extremely

rare; this case describes a small bowel obstruction in an adult patient with SIA (2).

## II. CASE PRESENTATION

The patient was 67 years old, with no previous pathological history, and was admitted to the surgical emergency room for an occlusive syndrome of vomiting, generalized abdominal pain, and cessation of food and gas that had been evolving for three days; Clinical examination revealed a conscious patient with tachycardia at 120 bpm, BP: 100/60 mmHg, the temperature of 37.3, distended abdomen and tympanic with generalized abdominal tenderness; on rectal examination, the rectal ampulla was empty without palpable mass. Abdominal radiography showed grellicular hydroaeric hydroaerobic. Abdominopelvic CT showed a bowel obstruction upstream of an area of hypogastric caliber disparity, with A complete abdominal situs inversus with the liver, and portal trunk visible on the left, spleen and stomach visible on the right and heart in place.



Fig. 1: Situs Inversus Abdominalis: Stomach on the Right, Liver and Gallbladder on the Left

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*Fig. 2:* Small Bowel Obstruction and Situs Inversus Abdominalis

The patient was operated on in the emergency room after resuscitation measures. The surgical exploration found a 4 cm dilatation of the bowel upstream of a gremo-mesenteric flange at 1.80 m from the duodenojejunal angle and 50 cm from the ileocaecal junction with necrosis of 1 m of the small bowel and the presence of a complete abdominal situs inversus and

common mesentery. The procedure consisted of segmental resection of 1m of the small intestine with necrosis of the small intestine and a small intestine anastomosis. The postoperative course was simple. The patient was discharged from the hospital on the fifth day and recovered four months later.



*Fig. 3:* Intraoperative Images Showing Bowel Necrosis





*Fig. 4:* Intraoperative Images Showing the Stomach on the Right, the Liver and Gallbladder on the Left Confirming the Situs Inversus Abdominalis

### III. DISCUSSION

SIT is a rare congenital malformation (1-6), first reported by Fabricius in 1600 (7), characterized by an inverted position of all viscera, including dextrocardia; the normal lung anatomy is inverted; The liver and gallbladder are located on the left side, and the spleen and stomach are on the right side (5).

The etiology of situs inversus has not been fully elucidated; studies have shown that it is related to genetic factors, changes in chromosome structure and number (8-6-9), maternal diabetes, and exposure to retinoic acid (10). In our patient no associated congenital anomalies were identified.

Some authors have reported that 60% of patients with situs inversus have other congenital anomalies of the gastrointestinal tract, such as gallbladder or intestinal atresia, splenic agenesis or colonic duplication. These anomalies manifest themselves in childhood, which leads to early diagnosis, if not prenatal diagnosis (8-3-10-5). Congenital heart defects are present in about 5-10% of patients (3).

Situs inversus can be asymptomatic and diagnosed incidentally during laparotomy or autopsy (5), and its revelation by occlusive syndrome would be a rare event (5-8), and its revelation by an occlusive syndrome would be a rare event (8). This is the case of

our patient; she was asymptomatic and did not know that she was carrying a situs inversus abdominalis (8), and it was the abdominal CT scan requested to support the diagnosis of intestinal obstruction, which allowed the discovery of the diagnosis of SIA by showing a reversal of the position of the abdominal viscera (8). This paraclinical examination is the critical examination to confirm the diagnosis of this anomaly.

In the literature, three cases of small bowel obstruction have been documented in adult patients with situs inversus abdominalis. The first case, described by Brown et al. involved a 54-year-old woman who presented with a bowel obstruction secondary to a trans mesenteric internal hernia, the second case, by Mallick et al, described a bowel obstruction secondary to a volvulus on incomplete common mesentery. The third case is of a 38-year-old woman with a band occlusion bowel or internal hernia (2).

In general, surgery in a patient with SIA is difficult (11), so preoperative diagnosis is important to plan the surgical incision and abdominal procedures (12). Our patient was approached by median laparotomy, and exploration confirmed the diagnosis of visceral inversion (8).



#### IV. CONCLUSION

Situs inversus totalis is a rare and asymptomatic congenital malformation. The latter is the cause of diagnostic and therapeutic difficulties encountered in many clinical situations, especially if the patient is not known to be a carrier of this malformation (13).

The association of situs inversus with intestinal obstruction on flange is very rare. Preoperative diagnosis of situs inversus is important for appropriate incision placement and surgical planning (12).

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# The Male-Child and the Principle of Reality in African Society: Educating the Male-Child away from the Grips of the Pleasure Principle towards the Reality Principle and Productivity through the Symbolic Order: A Transformative Perspective from Amu Djoletto in His ‘The Strange Man’

By Casimir Adjoe

**Abstract-** In two articles in the London Journal of Research and Social Sciences (IJRISS), (2019 & 2021), I explored, sequentially, the argument regarding the process of the formation of the human subject and how crucial it is for the individual's growth process to be moulded through integration into the symbolic order to enable human growth, development and maturation, mental stability, the formation of identity and individuality, and preparation for the need to labour. The outcome of such growth and process is being able to focus on a stable object and being able to become productive, and above all, capable of promoting the development of sound mental health and civilization.

**Keywords:** *The male-child, human subject, identity, symbolic order, pleasure principle, reality principle, eternal infantilism, mental health.*

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# The Male-Child and the Principle of Reality in African Society: Educating the Male-Child away from the Grips of the Pleasure Principle towards the Reality Principle and Productivity through the Symbolic Order: A Transformative Perspective from Amu Djoletto in His 'The Strange Man'

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**Keywords:** *The male-child, human subject, identity, symbolic order, pleasure principle, reality principle, eternal infantilism, mental health.*

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## I. INTRODUCTION

At the centre of the development of the human subject, in the view of Freudian psychoanalysis, is the Oedipus complex which defines the structure of relations by which we come to be the persons that we are or become (Eagleton 1992). To be able to achieve this, however, the presence of a father figure is crucial for the negotiation of the pre-Oedipal stage of life that makes us human subjects, gendered, and able to repress or sublimate our desires to achieve higher goals. Failure in this process has many consequences and is disastrous for the process of maturation and living as it results in the inability to enter into the symbolic order, which simultaneously signals a location into 'the locus of the risk of death', as according to Eagleton (1992), Freud described it. To illustrate this likelihood, I explored the phenomenon of rebellion of the male-child and its consequences through the framework of the symbolic order in tracing the development and consequences of the rebellion of Jaja, the rebellious male-child of Mr Achike in Chimamanda Ngozi Adichie's novel, *Purple Hibiscus*. In another article about women's imagination of men through women's writings, I further explored the role of the mother in the structure of relations of the Oedipus complex and her impact on the formation of the African male and their character in recourse to the images of men formulated by women's imaginative writings in selected West African women writers' works. It examined women's writings, particularly of novels and narratives in West Africa, and what they structure for meaning in relation to men in the formation of the individual and their induction into the symbolic order of becoming human subjects. The paper supposed that women's writings imagine, image and typify men according to certain frameworks and practice consciously or unconsciously derived from some basic and yet indeterminate source. The study traced out the outlines of some of these representations of men, leading to the frameworks within which they are typified

and cast using a specimen of four popular women's writings across West Africa. The significance of the study relates to the effect such imagination, imaging and typification, often negative, have had and continue to have on the growth of young male children in West African societies. In other words, its goal was to understand the implications and effect of such representations and frameworks of imagination on the character of men and their empowerment for growth, maturity and productivity or otherwise. It is most relevant for the exploration of the creation of the human subject, which is crucial for the building of mental health and wellness, and is essential especially on account of the need for the upbringing of male children to be able to negotiate their human existence towards the relevant focus, mental health stability, the reality principle, and eventual productivity if carried out within the normalcy of the growth process through the symbolic order. This prepares them eventually for being capacitated to meet the need for labour and the creation of civilization.

This paper follows up the sequence to explore how the male-child could be successfully inducted into the reality principle through the symbolic order and away from the pleasure principle, in order to develop as a human subject capable of gaining mental stability and wellness, making his own choices, developing the consciousness that leads to productivity, and cultivating respect for property and civilization building, through the thoughts and possibilities offered by a male novelist, Amu Djoletto, in his novel, *The Strange Man*.

## II. AIMS AND OBJECTIVES

The study sees the necessity of giving attention to male-child development and hence aims to explore and establish how the male-child can be inducted into the symbolic order and successfully negotiate it to achieve the full capability of becoming a human subject or a capable individual, capacitated for developing an identity and focus, and an orientation towards productivity, labour, and civilization creation.

The objective of this aim is to identify the main properties and characteristics for building the character of a male-child. These would assist in charting a credible path towards the formation of male children who are capable of negotiating securely and confidently through the well-established moulds of formation into human subjects through the symbolic order, and capable of developing focus and cultivating interest in being educated productively.

It seeks to establish the source and nature of this pattern in order to provide a credible and permanent reference for the basis of raising and educating the male-child appropriately for beneficial outcomes, including the establishment and empowerment for the need to labour, creativity, mental stability and civilization,

through a stable transition through the pleasure principle to the reality principle.

It also seeks to provide a means of establishing a framework for a credible assistance to the male-child through the growth process and their preparation towards grappling with the future and the 'unknown'. (Scholes 1968).

Consequently, it highlights the important and indispensable role of the father figure, the teacher, elders, and leaders in all spheres of life, and makes the case for their own re-education and formation towards the provision of a credible guidance in the formation of the male-child.

## III. THE RESEARCH PROBLEM

In two preceding articles in the *London Journals Press* (2019 & 2021), the influential role the mother plays in the formation process of the male-child was explored. In analyzing Chimamanda Adichie's *Purple Hibiscus* which explores and illustrates the rejection of the symbolic order and its consequences for the male-child's ultimate inability to grapple with the unknown, the possible role of the mother in thwarting the successful integration of the male-child into the symbolic order was made apparent. The analysis of four novels by four West African women writers also showed how influential women writers' imagination of men can be in affecting male youth development and self-perception. In the face of an overwhelming and prolific production of work and projects to assist the development of the girl-child and female empowerment, little seems to be going on in the direction of understanding and promoting the factors of the male-child and masculine development. This orientation does not create a growth environment for the emergence of healthy and confident male and masculine identities which are sturdy and focused enough to be productive and mentally stable for grappling with the challenges of life, the future, and the unknown. But how can this situation be rectified, and how can a balanced development of the male-child or the masculine identity be achieved? What kind of perspectives can be explored that are capable of contributing to the understanding of male children, their mode of experiencing and their tendencies to a great extent, and how can they be enabled to grow appropriately? The clarification of this process is expected to provide a means of maximizing the benefits of growth towards the reality principle and the development and establishment of salutary mental health of the male-child as they struggle to become human subjects. The absence of such understanding has left the male-child understudied, denying him the special attention they need to develop into complete human subjects or individuals equipped with the foundations of the mental health that capacitates creativity, productivity and the creation of civilization.



#### IV. JUSTIFICATION AND SIGNIFICANCE OF THE STUDY

The aims and objectives, and the research problem, reference a focus on the male-child and masculinity. The male-child and his welfare has been taken for granted in the face of the need to empower women and the girl-child. It is important to emphasize and empower the male-child too, in the formation of their identity, lest they become less than they could be. The male-child should develop with a focus towards establishing the reality principle, enabling the establishment of a framework for appreciating and orientating the individual towards productivity, respect for property, and the creation of civilization, and maintaining a stable mental health, culminating in becoming a real and capable citizen. The male-child should not be left to develop, as Maglaque (2020: 37) described it, as 'a connoisseur of depravity.' This cannot be accomplished unconsciously. To be able to achieve these goals, conscious efforts need to be made to investigate the nature and characteristics of the male-child and how they could be helped to grow, mature, and prepare for the challenges of life, for the future, and for the unknown. There doesn't seem to be much effort and investigation into raising and empowering the male-child as there is to the welfare of the girl-child and their empowerment. Public policies, educational endeavours and policies, mass media, social media and other public systems have little or no mention of the male-child and their development. This work, therefore, seeks to create the awareness for the needed attention for male-child development in policy and practice, especially in Educational spaces and domains.

A study carried out by Adjoe & Adanu (2022) in response to a phenomenon of early sexual practices among school children, affecting the life chances of youth in a peri-urban community titled *Commodification, Sexuality and Choice among school children in a Ghanaian Community: The Consequences for Teaching, Learning and Life Chances*, highlighted the dangers of not assisting young people in communities to develop the abilities for better or productive moral and ethical judgements that enable the sustenance of opportunities for education, learning and life chances. Using questionnaires, interviews, conversations and observations, the study reckons that the school children's reasoning and consciousness in determining their attitudes towards choices concerning early sexual practices and in their indulgence or otherwise is crucial. It argued that "schoolchildren's attitudes and behaviour are shaped by social philosophies including empiricism, solipsism, economism and commodification which promote the pleasure principle in a complete departure from the ways of knowing that obtained in society a generation ago. The consequences of such a radical change from the traditionalism of a generation ago is the

development of a nihilistic attitude guiding their moral and ethical choices which are nevertheless detrimental to their own development into personhood and the development of their future opportunities through education, learning and life chances." Consequently, the neglect of the conscious development of the male-child can only leave them at the mercy of social philosophies that would be detrimental to the development of their personhood, reasoning and consciousness, and inevitably exclude them from worthwhile life chances as they are abandoned under the rule of the pleasure principle.

It is, therefore, worthwhile that the male-child is developed to have a focus corresponding to the crucial aspect of male-child development, and a conscious effort placed on it; one that it has not yet enjoyed to the detriment of its growth process, owing to neglect and being taken for granted. A male-child should be able to feel confident about their maleness, masculinity, and identity as male individuals just as a female should be about hers, and be able to develop accordingly.

The focus on the process of the growth of the child means that his appropriate education, guidance and empowerment can be fashioned according to conscious and observable principles and processes. That also means the appropriate equipment of teachers, parents, guardians and caregivers for the challenging role and the appropriate attention needs to be equally given for their empowerment to be able to function in the role. The child can thus be guided and empowered to achieve mental stability, reassurance, and clarity of purpose and focus on a single objective towards creativity, productivity, respect for property and civilization. They can begin to know what constitutes a male or masculine identity and how they can participate in the world, society, and living as masculine beings. They would be empowered to accept their masculinity and be confident that it is an undoubtedly positive and crucial possession to be cherished and utilized for civilized purposes. This would enable them to make fundamental choices and decisions about the values of matriarchy and patriarchy and how to balance them effectively for achieving creativity and civilization, and enabling productivity within the symbolic order and reality principle. They can thereby be capacitated to achieve a clarity of purpose and the formation of the human subject; identity and individuality can be achieved successfully, shielding them from mental instabilities and the unnecessary confusions that threaten to keep the male-child under the location of the risk of death and eternal infantilism.

##### Research Questions:

1. What are the pleasure and reality principles?
2. What are the main characteristic features of masculinity and especially of a male-child?



3. How is the male-child enabled to develop and mature through the role of the father, teachers, guardians and caregivers in the formation of an identity as a human subject, an individual, and develop a healthy mental health and stability?
4. What are the blockers of the male-child's growth?
5. How can the male-child be educated to become a human subject, capable of productivity, civilization and develop a healthy mental orientation and focus?
6. How is the induction into the symbolic order achieved in Amu Djoletto's *The Strange Man*?

## V. APPROACH TO THE STUDY

The paper introduces the relevant issues in the introduction, and elaborates them by exploring the aims, objectives, and significance of the discussion. It proceeds to ask the relevant questions to facilitate the discussion of the subsequent sections of reviewing the literature and theories that would aid the analysis of the subject and the examination of the subject in Amu Djoletto's *The Strange Man*. The theory that this discussion turns to for the analysis of issues is mainly the psychoanalytic method of literary criticism as described by Eagleton (1992) and Frankl's (1992) social history of the unconscious for examining the development of the masculine characteristics and their sustenance through the symbolic order. These theories and their approaches and adherents' analyses seem most relevant for this subject as they are primarily focused on how the human subject emerges and develops into a gendered identity and the orientations and dispositions they foster thereupon.

The primary resource for the analysis in a concrete context will comprise the analysis and exploration of the phenomenon of inducting a male-child into the symbolic order as explored by Amu Djoletto through his Ghanaian narrative, *The Strange Man*. What Amu Djoletto's *The Strange Man*, contributes to this discussion is a perspective which reaches to the psychoanalytic sources of the male-child's characteristics, attitudes, orientations and focus, enabling us to explore how the child develops through the symbolic order and develops the capacity to transit the pleasure principle to the reality principle to become a human subject ready for productivity and the building of civilization. Moreover, it explores how the transition from the pleasure principle to the reality principle is achieved in spite of the enormous challenges and conflicts inherent in the process, and yet the possibility of achieving the transition into a human subject or an individual who is confident in what it means to be masculine and a male subject preparing towards productivity, citizenship, and a future which is unknown and yet fully prepared for it.

### a) Literature Review: *The Symbolic Order, the Pleasure Principle and the Reality Principle*

According to Eagleton (1992), Sigmund Freud, in his *Introductory Lectures on Psychoanalysis*, made a significant statement: "The motive of human society is in the last resort an economic one." Freud summarized his thinking that what has dominated human history is the need to labour. By this observation Freud reckons the necessity of labour for human existence; and its implications are that the need to labour necessarily requires that we repress some of our tendencies to pleasure and gratification to be able to achieve this essential human need. It is apparent that we would not willingly be inclined to labour, and so "If we were not called upon to work in order to survive, we might simply lie around all day doing nothing". Consequently, every human being has to undergo the repression of what Freud named the 'pleasure principle' by the 'reality principle'. Such a repression, if undertaken, is sometimes done excessively. Such excesses result in a person or even whole societies becoming ill.

Whereas human beings may be prepared to put up with repression as long as they see that there is something beneficial in it for them, the excesses of repression produce a kind of disease known as 'neurosis'. In spite of this, all human beings must be repressed to some degree, creating the human being as a 'neurotic animal'. However, neurosis has its positive side, for as much as it creates disease and unhappiness, it is involved with what is creative about us. The creativity emerges as a result of the efforts of the human being to cope with neurosis by 'sublimating' his or her desires that should be repressed by directing them towards a more socially valued end. As Eagleton (1992: 152) puts it, "We might find an unconscious outlet for sexual frustration in building bridges or cathedrals. For Freud, it is by virtue of such sublimation that civilization itself comes about: by switching and harnessing our instincts to these higher goals, cultural history itself is created."

Eagleton (1992), further observes that whereas Marx examined the consequences of our need to labour in terms of the social relations, social classes and forms of politics, Freud turned instead to its implications for the psychical life. This is crucial because the psychical life is about human relationships and identities. The internal or inner life and the creation of human relationships and identities are indispensable for social relations, social classes, and forms of politics, and underlie them. What Freud discovered, above all, is a paradox or contradiction which grounds his work. This paradox or contradiction evinces that "we come to be what we are only by a massive repression of the elements which have gone into our making. We are not of course conscious of this fact, since the place to which we relegate the desires we are unable to fulfil is known as the unconscious". (Eagleton 1992: 153).

Thus, repression and the unconscious play a major role in creating a human subject. However, in order to create an individual capable of enduring the repression successfully, certain pertinent factors need to be taken into consideration. The relevance of repression and the unconscious can be better understood if we take into consideration the prolonged dependence upon parents or other adult members of our species for survival during infancy as necessitated by human evolution. A human being cannot survive if left entirely helpless and without the immediate, unceasing care of such members of our own species. It is within this prolonged evolutionary process that the formation of the human subject begins based upon certain occurrences. According to Eagleton's (1992: 153) description of Freud's analysis,

"This unusually prolonged dependence on our parents is first of all a purely material matter, a question of being fed and kept from harm: it is a matter of the satisfaction of what may be called our 'instincts', by which is meant the biologically fixed needs human beings have for nourishment, warmth and so on. Such self-preservative instincts are a good deal more immutable than 'drives', which very often alter their nature. Our dependence on our parents for the nurturing services does not stop at the biological. The small baby will suck its mother's breast for milk, but will discover in doing so that this biologically essential activity is also pleasurable; and this, for Freud, is the first dawning of sexuality. The baby's mouth becomes not only an organ of its physical survival but an 'erotogenic zone', which the child might reactivate a few years later by sucking its thumb, and a few years later than that by kissing. The relation to the mother has taken on a new, libidinal dimension; sexuality has been born, as a kind of drive which was at first inseparable from biological instinct but which has now separated itself out from it and attained a certain autonomy. Sexuality for Freud is itself a 'perversion' – a 'swerving away' of a natural self-preservative instinct towards another goal."

This begins a process of development by the infant. As it grows, other erotogenic zones come into play:

"The oral stage, as Freud calls it, is the first phase of sexual life, and is associated with the drive to incorporate objects. In the anal stage, the anus becomes an erotogenic zone, and with the child's pleasure in defecation a new contrast between activity and passivity, unknown in the oral stage, comes to light. The anal stage is sadistic, in that the child derives erotic pleasure from expulsion and destruction; but it is also connected with the desire for retention and possessive control, as the child learns a new form of mastery and a manipulation of the wishes of others through the 'granting' or withholding of the faeces. The ensuing 'phallic' stage begins to focus the child's libido (or sexual drive on the genitals, but call 'phallic' rather than

'genital' because according to Freud only the male organ is recognized at this point. The little girl in Freud's view has to be content with the clitoris, the 'equivalent' of the penis, rather than with the vagina." (Eagleton 1992: 153).

The stages of development of the infant, the oral stage, the anal stage, and the phallic stage, sometimes overlap. However, they also indicate the gradual organization of the libidinal drives of the infant. This organization of libidinal drives is essentially centred on the child's own body. Drives are not biological or material instincts; they are offshoots of libidinal dimensions from pleasure which separate themselves from the biological instincts to constitute themselves into independent expressions. As drives, they retain a characteristic that can be described as extremely flexible. In this extremely flexible state, their objects are contingent and replaceable, and one sexual drive can substitute itself for another. Eagleton (1992: 154) describes what obtains under this contingent and replaceable state and the nature of what can be expected from these extremely flexible tendencies thoroughly:

"What we can imagine in the early years of the child's life, then, is not a unified subject confronting and desiring a stable object, but a complex, shifting field of force in which the subject (the child itself) is caught up and dispersed, in which it has as yet no centre of identity and in which the boundaries between itself and the external world are indeterminate. Within this field of libidinal force, objects and part-objects emerge and disappear again, shift places kaleidoscopically, and prominent among such objects is the child's body as the play of drives laps across it. One can speak of this also as an 'auto-eroticism', within which Freud sometimes includes the whole of infantile sexuality: the child takes erotic delight in its own body, but without as yet being able to view its body as a complete object. Auto-eroticism must thus be distinguished from what Freud will call 'narcissism', a state in which one's body or ego as a whole is 'cathected', or taken as an object of desire."

"It is clear that the child in this state is not even prospectively a citizen who could be relied upon to do a hard day's work. It is anarchic, sadistic, aggressive, self-involved and remorselessly pleasure-seeking, under the sway of what Freud calls the pleasure principle; nor does it have any respect for differences of gender. It is not yet what we might call a 'gendered subject': it surges with sexual drives, but this libidinal energy recognizes no distinction between masculine and feminine. If the child is to succeed in life at all, it obviously has to be taken in hand; and the mechanism by which this happens is what Freud famously terms the Oedipus complex. The child who emerges from the pre-Oedipal stages we have been following is not only anarchic and sadistic but incestuous to boot: the boy's

close involvement with his mother's body leads him to an unconscious desire for sexual union with her, whereas the girl, who has been similarly bound up with the mother ..., begins to turn her libido towards the father. The early 'dyadic' or two-term relationship between infant and mother, that is to say, has now opened up into a triangle consisting of child and both parents; and for the child, the parent of the same sex will come to figure as a rival in its affection for the parent of the opposite sex".

The boy-child abandons his incestuous desire for the mother only because of the fear of the father's potential action of castrating him. The threat of castration is not necessarily spoken but unconscious. The boy, taking a cue that the girl is herself 'castrated', begins to imagine the punishment he might suffer if he did not abandon his incestuous desire for the mother. Consequently, he is forced to repress "his incestuous desire in anxious resignation, adjusts himself to the 'reality principle', submits to the father, detaches himself from the mother, and comforts himself with the unconscious consolation that though he cannot *now* hope to oust his father and possess his mother, his father symbolizes a place, a possibility, which he himself will be able to take up and realize in the future." He especially convinces himself that although he might not be a patriarch now, if he waits his turn, he will become one in future. Realizing this, the boy makes peace with his father and chooses to identify with him, and is thus introduced into the symbolic role of manhood. He has become a gendered subject, surmounting his Oedipus Complex. The reason he is able to surmount his Oedipus complex is because he has driven his forbidden desire underground and repressed it into the unconscious. The unconscious is not a concrete place that was ready and waiting to receive such a desire, but is produced and opened up by the process of primary repression. Consequently, as a masculine gender, and a man in the making, the boy will now grow up within those images and practices which his society happens to define as 'masculine'. He will one day become a father himself, capable of sustaining his society by contributing to it through his sexual reproduction activities. This is possible only because his earlier diffuse libido has become organized through the Oedipus Complex. A boy, however, could be sexually incapacitated for such a role if he is unable to organize his sexual desires through the Oedipus complex, for he may privilege the image of his mother above all other women. On the other hand, his sexual life may be affected if he over-sympathizes with the recognition that women are 'castrated', causing him to be traumatized so deeply that he is rendered unable to enjoy satisfying sexual relationships with them.

In similar vein, to enter into the Oedipus complex, a girl must be able to change her 'love-object' from mother to father. A change of love-objects is,

nevertheless, a complex and difficult affair, and can raise problems about female oedipalization.

Consequently, as Eagleton (1992) notes, the Oedipus Complex, is utterly central to Freud's work. This centrality of the Oedipus Complex is significant because it is not just another complex: it is the structure of relations by which we come to be the men and women that we are:

"It is the point at which we are produced and constituted as subjects; and one problem for us is that it is always in some sense a partial, defective mechanism. It signals the transition from the pleasure principle to the reality principle; from the enclosure of the family to society at large, since we turn from incest to extra-familial relations; and from Nature to Culture, since we can see the infant's relation to the mother as somehow 'natural', and the post-Oedipal child as one who is in the process of assuming a position within the cultural order as a whole...Moreover, the Oedipus Complex is for Freud the beginnings of morality, conscience, law and all forms of social and religious authority. The father's real or imagined prohibition of incest is symbolic of all the higher authority to be later encountered; and in 'introjecting' (making its own) this patriarchal law, the child begins to form what Freud called its 'superego', the awesome, punitive voice of conscience." [Eagleton 1992: 156].

With the readiness for gender roles to be reinforced, desires for satisfactions to be postponed, authority to be accepted and the family and society to be reproduced, the concern turns to the unruly, insubordinate unconscious. The child's development of an ego or an individual identity, and the development of a particular place in the sexual, familial and social networks, nevertheless, is achieved through splitting off its guilty desires by repressing them into the unconscious. Thus, the human subject who emerges from the Oedipal process is a split subject who is torn precariously between the conscious and the unconscious. It means that the unconscious can always re-emerge to disturb it. It can, thus, manifest its radical otherness which is completely indifferent to reality and knows no logic or negation or causality or contradiction, but wholly given over as it is to the instinctual play of the drives and the search for pleasure. Thus, the manifestation of the unconscious in the human subject cannot be taken for granted.

The process of the constitution of the human subject and its responsibility for creating the critical factors towards the creation and sustenance of civilization, and its significance for psychical life make it indispensable and worth every effort to consciously monitor, encourage, and midwife for producing the most worthwhile outcomes as steady, aware, conscious, and responsible human subjects. The relationship between these critical stages and state of growth for the creation, sustenance, and development of civilization are

described by George Frankl (1992). And what Freud describes at the fundamental stage of the individual in the build-up towards civilization, Frankl describes at the social and historical level through the representations of the concepts of matriarchy and patriarchy.

b) *The Battle between Matriarchy and Patriarchy: The Position of Masculinity in the Organization of the Scheme of Human Subject Formation and Sustenance*

Frankl (1992) refers to the work of the Swiss historian, J.J. Bachofen's, *Mother Right*, in describing the possibility of the existence of an ancient matriarchal culture which was superceded by patriarchy and gives the underlying reasons for the supercession. Bachofen regarded the transformation from matriarchy to patriarchy as the most significant event in the history of civilization. A wide-ranging study of the folklore, religion and rituals of the Cretans, Egyptians, Athenians, and many Asiatic peoples provided evidence of the predominance of gynocratic or matricentric societies in ancient times. Building upon his findings, he drew attention to the drama of the Ancient Greeks in particular to illuminate how and why, in contrast, they presented the conflict that originated between the two cultures of matriarchy and patriarchy.

He drew attention particularly to Aeschylus and Sophocles, considered as the greatest of the Greek playwrights, and their endeavours to present the causes and results of the conflicts between the values of patriarchy and matriarchy in their plays. For example, Aeschylus' *Oresteia* and Sophocles' *Oedipus* represent two different aspects of patriarchal culture, each describing something of fundamental importance. Frankl (1992: 12-13) notes that the first, written forty years before the other, "is almost entirely concerned with overcoming the demands of matriarchal morality and with the struggle for superiority between the mother and father in the moral and juridical order of society; whereas the latter, having seen the victory of patriarchy, sets out to propound its most powerful taboos, namely, those concerning the sexual bonds between mother and son. Both dramatists propagate the necessity for men to be weaned from their dependency upon their mothers, first in terms of law and morality and second in terms of emotional and sexual bonds which have to be overcome if the new civilization, the new world-view is to remain victorious". (Frankl 1992: 13)

What Bachofen's work as described by Frankl (1992) underlined is that: "The advance from the maternal conception of mankind to a paternal conception was the most important turning-point in history which brought with it fundamental changes in the psycho-social orientations of human beings." (Frankl 1992: 13). Frankl (1992) points out that the main feature of matriarchal cultures indicates that they are governed by a gynocracy, that is, a blood-bond between the

members of a family or group to their mothers. "Being the mother's offspring unites members of a group into a community, whereas the father is considered as a friend, guest, helper, without any significant legal importance for a group's cohesion. It is a community of blood relationship that relates the children to the mother, the members of the group to the womb from which they sprung." (Frankl 1992: 13). However, in the new dispensation, the father's status and role had to be recognized and instituted to constitute articulation involving authority, law, justice, and intellectuality.

The symbolism of the blood-bond in gynocracies is the love between the mother and her offspring. In this sense it is the promotion of a sense of brotherhood and equality whose governing principles are based on love and compassion, relegating fear and sacrifice, that is, repression, in the sense of the Freudian description of repression. It also means the elimination of neurosis in this relationship; and the negative implications of eliminating neurosis for creating and sustaining a civilization become apparent. Frankl (1992: 13-14) explains that Bachofen's description of the traits of this relationship produce a state of affairs concerning mother and child:

"The relationship which stands at the origin of all culture, of every virtue, of every nobler aspect of existence is that between mother and child; it operates as the divine principle of love, of union, of peace. Raising her young, the woman learns earlier than the man to extend her loving care beyond the limits of the Ego to another creature and to direct whatever gift of invention she possesses to the preservation and improvement of the other's existence. Woman at this stage is the repository of all culture, of all benevolence, of all devotion, of all concern for the living and grief for the dead. Yet the love that arises from motherhood is not only more intense but also more universal; whereas the paternal principle is inherently restrictive, the maternal is universal. The idea of motherhood produces a sense of universal fraternity among all men, which dies with the development of paternity. Every woman's womb, the moral image of the earth mother Demeter, will give brothers and sisters to the children of every other woman; the homeland will know only brothers and sisters until the day when the development of the paternal system dissolves the undifferentiated unity of the mass and introduces the principle of articulation".

Frankl (1992: 14), citing Fromm, referred to this kind of existence as the 'matricentric complex'. Fromm summarised that "The 'matricentric complex,' is characterized by a feeling of optimistic trust in mother's unconditional love, far fewer guilt feelings than those shown by patricentric individuals, a far weaker Superego and a greater capacity for pleasure and happiness. Along with these traits there also develops the ideal of motherly compassion and love for the weak and others in need of help".



However, things don't end there, because whereas the blood-bond and 'matricentric complex' promotes the soft and pleasurable values described above, on the other hand, the good and benevolent mother goddess can quickly turn into a ruthless Fury if the law of the blood is offended against. The seemingly benign and kindly mother goddesses turn into the Furies, the Erinyes divinities personifying the rage of the mother against the transgressor of her laws. What the Greek dramatists, including Aeschylus, have shown, thereby, is that the concept of justice which prevailed among the pre-Olympian cultures was based upon the principle of revenge. "It was the function of the Furies to hound the offender in his dreams and in his imagination, and to pursue him until vengeance was executed. Their horrible aspect and relentless cruelty were sharply exposed by Aeschylus in his *Oresteia*." (Frankl 1992: 14). These characteristics caused Apollo to invoke a conflict in which he made a devastating attack upon the inconsistencies and inadequacies of the code of justice of the mother goddess and pre-Olympian cultures:

"While they will punish a son who does not take revenge for any harm done to his mother and punish equally a son who kills her, they will ignore the guilt of the wife who kills her husband because he is not her blood relation. This is an intolerable position as it implies a deep contempt of the marriage bond which was fundamental and sacred to the new order; it also shows that the Furies' concept of justice is based upon the blind demands of instinct and is incapable of taking into consideration the complexities of individual cases. Moreover, under their dispensation, a single murder may lead to an insoluble blood feud and an endless series of murders in successive generations. On the whole, the old religions provided no safe moral guide, the quest for justice received no solution from the ancient mother goddesses". (Frankl 1992: 15).

According to Frankl (1992), Aeschylus used the *Oresteia* to show how the rule of revenge becomes a ruthless and inescapable fate that haunts society, and to show a way by which the ancient concept of justice and its chain of violence could be broken and replaced by a higher code of law and morality, one governed by reason and persuasion, and by intellect rather than by the blind forces of instinct. By it, he also wanted to prove to the citizens of Athens that this new code of law is associated with the rule of the father, thus, with the emergent patriarchic culture which departs from dependence on revenge for its moral decision-making and judgement of one another in society.

In outlining how the blood feuds and revenge played out and how they were resolved to usher in a new kind of civilization based upon law, order, intellectuality and persuasion, Aeschylus described in his first play of the *Oresteia*, how Clytemnestra kills her husband Agamemnon in order to gain revenge for his murder of their daughter Iphigenia. He had sacrificed

her to the goddess Artemis in order to assure his success in the war against Troy. "By this act he outraged Clytemnestra's motherhood and by his ten years absence in wars and conquests, which he deemed more important than the needs of his wife, he also outraged her femininity. Clytemnestra becomes a murderess, a Fury, a witch, and her son Orestes kills her to avenge the murder of his father". (Frankl 1992: 15).

In the third play of a trilogy, Aeschylus confronts the problem of justice which core centres around the crime and guilt of Orestes. It has to be established who is more important in the family and in society; whether it is the mother or the father. The traditional dominance of the mother under the gynocratic order had to be broken and the superior importance of the father in the family, and in the state, representing law, order, intellectuality and persuasion, unequivocally established. The father's claims to a higher level of intellectuality and his capacity of reasoned persuasion had to be illustrated by a rational victory over the instinct-dominated demands for revenge. "The representatives of the new order had to be seen not merely to be more powerful but on a higher level of rationality. Not violence but holy persuasion had to assure victory in order to validate the new dispensation. The Furies represent the old order, while Apollo and Athene represent the new. The former haunt and pursue Orestes and demand his blood, whereas Apollo defends him. The Furies claim that his crime is much more horrible than that of Clytemnestra for in killing his mother he outraged the laws of blood, whereas Clytemnestra's crime is less serious for her murder of her husband did not violate the blood-bond since the husband is not a blood relation." (Frankl 1992: 16).

The trial in *The Eumenides*, advanced a long argument between the Furies and Apollo on the respective rights and status of mother or father in marriage and parenthood. Apollo states succinctly the case for the father and tries to show that the traditional ideas of the blood-bond between mother and child are incorrect:

*Apollo*

This too I answer; mark the truth of what I say  
The mother is not the true parent of the child  
Which is called hers. She is a nurse who tends the growth  
Of young seed planted by its true parent, the male.  
So, if Fate spares this child, she keeps I, as one might  
Keep for some friend a growing plant.  
(Frankl 1992:16)

Thus 'holy persuasion' and respect for the commands of reason is to replace the old forms of justice dominated by the blind forces of revenge, and democracy – as we understand it – was born.

After having projected the positive aspects of the ancient virtues of matriarchy, Bachofen goes on to



remind his readers of the spiritual superiority of the patriarchal system thus:

"In matriarchal cultures we have confinement to instinct and the demands of nature, in patriarchal culture we have intellectual and spiritual development. In the former we find lawfulness, in the latter individualism. In the former we find exultation in the abandonment of nature, in the latter we find exultation above nature, a breaking of the old barriers and a powerful striving of Promethean life replacing the constant rest, peaceful pleasure and eternal infantilism. Here man breaks through the bonds of his childhood and lifts his eyes to the higher regions of the cosmos." (Frankl 1992: 18).

Being a man, masculine, a male individual and a male human subject, a father or potential father, has its distinctive status and *raison d'être* that is indispensable for society. It is too crucial for humanity's existence to be discounted, ignored, denied, or taken for granted.

c) *And how can the male-child achieve this status, break the bonds of his childhood and lift his eyes to the higher regions of the cosmos in contemporary society?*

In Frankl's (1992:18) words: "The ancient mother goddesses have been driven underground but not finally vanquished. As long as patriarchal cultures are based upon the repression of mother-orientated instincts, Demeter will continue to lure man's romantic imagination and the Furies will demand revenge against the domination and authority of the Fathers. They wait in their underground lairs, in the unconscious regions of man's mind to erupt upon the surface whenever the patriarchal structure shows signs of weakness; then they will emerge and strive to acquire once again domination over the thoughts and actions of men".

Thus, the study of ancient matriarchy shows that having preceded patriarchy, it continues to exercise a powerful influence upon it. In the expression of Wittgenstein (1958), like the old city that never disappears, it remains even as the modern surrounds it. Consequently, as much as a patriarchal Superego exists, so the much older matriarchal Superego. Furthermore, the matriarchal as well as the patriarchal Superego can degenerate and become dominated by aggressive-destructive drives. What this means is that the mother can turn into the witch and the father into the devil; similarly, both witch and devil can combine to dominate the mind of individuals as well as the culture of societies, where the ideals of human love are mocked and replaced by the excitement of sadism.

The conclusion is that the formation of the human subject cannot be taken for granted or left to chance; it has to become a conscious and constant effort to supervise the process of integration into the symbolic order of the individual, and to safeguard it

against the subconscious forces that are constantly seeking the means to erupt and dominate the mind. Such safeguarding can be sustained after integration into the symbolic order through law, order, intellectuality, and 'holy persuasion'.

Amu Djoletto's *The Strange Man* provides an interesting framework for achieving such an outcome through the education of the male-child, ensuring his induction into the symbolic order.

d) *How is the induction into the symbolic order achieved in Amu Djoletto's The Strange Man?*

Amu Djoletto's novel, *The Strange Man*, published in 1967, is the story of Old Mensa, a respected member of a village community in Ghana and the influence of his liberating and empowering upbringing by Old Anang, his father, through the principles of raising a male-child successfully, learnt through his own keen observation and structuring. Its effects on Old Mensa were salutary because it made him into an individual, a human subject who could be described as a person of substance. A vivid description of his boyhood has many high points of which his organizing of and catching and castrating of a he-goat as a seven year-old boy is the most memorable and defining core of the need for the process of education of the male-child into the symbolic order in readiness for development as a human subject, an individual, and ready to face the unknowns of life.

Amu Djoletto, born in 1929, attended Secondary schools in Ghana, and studied English at the University of Ghana. He later studied textbook production at the Institute of Education, University of London, became the editor of Ghana Teachers' Journal, and published two main novels: *The Strange Man*, and *Money Galore*, the latter being a satire on political corruption.

With his background in Education and the production of textbooks, it is not surprising that his particular concern and focus should be the engagement with the education and secure raising of children or young persons to maturity and mental health based on the concern for establishing a process of achieving the status of the human subject, individuality, an identity and mental stability, and a readiness for enquiry that helps each child to learn first and foremost.

Situated in a community and context which is replete with all kinds of weaknesses and confusing values that pose grave dangers to personhood and a clear development path, and which works like the personified workings of the unconscious, the male-child, nevertheless, has to be guided to learn how to negotiate life and living successfully. Djoletto's (1967) endeavor consisted in engineering confidence in the belief that the male-child is capable of learning to develop a sense of character, conscience, personhood, and a desire to abandon his pleasure principle for the reality principle.

The task of giving this guidance falls on the father and the methods and techniques he adopts.

Djoleto (1967) depicted a societal context fraught with the challenges of twisted characters that created structures for maintaining societal control through perverted methods and their reproduction through reproducing a society with 'devilish' credentials by turning away from the ideals of civilization. Leaders of the society such as some of the religious leaders, retired civil servants, elders' courts, head-teachers, business men, politicians, and loafers, all alike exhibited the degenerate forms of living organized around instruments of reductionism, hypocrisy, disregard for property, deception, betrayal, and pseudo-scientific attitudes and behaviours. A child living under the clouds of such negativity resembling the personified workings and challenges of the unconscious could easily be influenced and become confused in how to make decisions and judgements, and how to develop morality, ethics, conscience and maturity enough to chart a path through the unknown as they develop (Angier, 2003; Janaro & Altshuler, 1989). Nevertheless, children still need to be guided to succeed in such contexts and to transcend the degenerate Superego to achieve a Promethean life shaped by the symbolic order.

However, two things emerge in spite of the challenges of existing in a degenerate context: the discovery that a male-child can plan, focus and achieve set goals; and that a male-child is able to think and reason like an adult most of the time in spite of intervening fictional bouts. He could therefore be potentially guided to develop into a father figure with the ability to develop into a full and responsible citizen. Old Mensa stood out in the community as a unique personality because of the methods and techniques by which his father Old Anang raised him up, and by which he himself made efforts to raise his own children later. In the end, his upbringing and distinctive character enabled him to be productive, symbolized in the achievement of owning a house of distinction. "It was usually a quiet place guarded by a vigilant, aggressive dog, called Hope. It was an impressive building in its own right, put up in the early forties, and had been, when new, easily the best looking building in the area and certainly raised the architectural tone of the one of the suburbs of Accra, near the sea". (Djoleto 1967: 1).

But for his detractors who had little respect for others' achievements and property,

"It was this house which Old Mensa's enemies in particular thought he did not deserve. These people, whose chief preoccupation was to assess other people's achievement in relation to their own, thought he could only have owned such a fine house through the perennial mistake of God or Chance or Providence or Society. What Old Mensa had gone through during

the fifty-eight years of his existence did not matter to them. The house, comfortable as it was, was a material manifestation. The human story was another aspect of the struggle a man might have to make if he was to be true to his own nature. Old Mensa happened to try to lead his own life." (Djoleto 1967: 1-2)

Old Mensa's society was one that did not reckon, as Hight (1951: 35) noted, that "The young are trying desperately hard to become real people, to be individuals. If you wish to influence them in any way, you must convince them that you know them." In such a society, growing up youth have several concerns. These concerns led them to thinking and asking questions, and often wondered whether the elders and those in authority really understood life or them.

It was a society in which competition and betrayals were rampant. Tete, who was Old Mensa's brother was trying to outshine his brother. His endeavours ended up in his early death on account of a desperate race and rivalry which did not even exist, as Old Mensa lived his life without rivalries, but confident in his own abilities, he felt comfortable with himself. When neighbours referred to him, it was with awe and respect, but also noting the complexity of his personality and individuality that they couldn't fathom:

"Ah, Old Mensa, he is quite different,' Akoto said. 'Yes, true, true indeed; but he has a sharp tongue. I wouldn't like to get involved with him,' Ofori said. 'You're quite right, Akoto,' Okai agreed. 'The two are different. Here you have Tete: tall, handsome, paunchy, jovial, proud and boastful – a man who likes his food and wants to be recognized at any cost. There you have Old Mensa: medium height, a head like nutmeg but attractive on his shoulders, a lined face, but always neat, ascetic, reserved with a kind of glow about him. He fascinates me. He's so unhurried and composed. You never see him often but you're aware of his presence. I hear he keeps a daily record of what happens to him and to others.'" [Djoleto 1967: 12-13].

As a little boy, Old Mensa lived with his family in a mud-house which had corrugated-iron roofing. His father was Old Anang.

"He was a happy little boy, carefree and handsomely built, and precociously articulate. Nothing impressed him so much as the towering Akwapimian hills especially in the mornings when the mists rolled over their summit. He loved to hear the birds sing and would have loved to have them in his control. He was the eldest of three children. Tete came after him, and then their sister. Little Mensa's parents were fond of him. Even as a boy of seven, he could have his way in most things. He could organize his boy friends in the village for any mischief and was prepared to speak

the plain truth often to anybody when they were caught." (Djoleto 1967: 16).

- e) *Children's thinking and imaginative logic: A reflection of father's conversations, adult conversations, observations, beliefs and practices in the society and childhood fantasies of what is possible:*

The male-child's thinking and logic can often be curious, but even if they appear fictional at first, they can be traced back in facts gleaned from adults in their environment: in the conversations of adults, actions and observations within their environment, and the beliefs and practices existing within society. For example, in respect of their castration of the he-goat, they explained themselves:

"The village boys, for their own very good reasons, did not like the goats at all and considered them both a threat to themselves and a nuisance. They particularly and bitterly hated the he-goat which they treated with the greatest amount of disrespect, and, when unseen, with savage cruelty. What disturbed them about the he-goat may be summed up under four categories. First it worried too much the nanny-goat both during the day and in the night and gave her no rest. This they considered unreasonable. Second, the he-goat would spend all feeding time asking the nanny-goat to oblige; then when it was dark and the boys went round to drive in the goats, it would be far away in the bush searching for a bite before running in. If the boys came home without it, then they would be in for trouble. They would be whacked on the backside for leaving the he-goat behind. Third, the he-goat smelt too much. Whenever the boys were in the church, worshipping God, it would not only foul the air they breathed but also make unpleasant noises at the nanny-goat and divert their attention from the Almighty. If they were caught looking its way, they would be told that God did not like children who would not listen to the sermon. Fourth, the he-goat always led the gang of marauding goats to the farms near the village. If those goats ruined the crops, it was the boys who were held responsible." (Djoleto 1967: 16-17).

The boys were able to work out plausible reasons for which they needed to deal with the troublesome and irrepressible he-goat:

"Since the boys trusted the saying that prevention is better than cure, they treated the he-goat in any awkward manner possible just to make it realize that it was making life difficult for them; that it was too often the source of their afflictions... If it did not bolt away and allowed its lust to overcome other considerations, it would get a bad kick in the hindquarters from one of the boys. Any boy who succeeded in timing it and gave it a kick that got it bleating painfully away was the hero of the day." (Djoleto 1967: 17)

Little Mensa hatched a plot to castrate the he-goat in the village, in order to tame it. He was able to persuade the boys to agree to undertake the project. The surprising thing was that for his age, being strong-willed, he could keep an idea to himself for as long as he had decided to. For some reason or other, the boys trusted his leadership though they did not always like him. He convinced his friends with what he once heard from his father's conversations: "My father says if a goat hasn't got them, it doesn't smell and keeps out of mischief." (Djoleto 1967: 21). He was referring to the testicles or the gonads of the he-goat.

In carrying out the curious deed, they were caught by a man who hounded the boys in the village; a man who had made it an article of faith to suspect those boys always. He therefore went straight and fast to find out for himself what the boys were up to. (Djoleto 1967: 22). He went first to Old Anang's house because he felt Mensa would by all means be connected with the bloodshed. He had two very good reasons for his suspicion. First, he was quite convinced that Mensa was an incorrigibly bad boy. Second, the bloody affair had taken place on his father's farm. (Djoleto 1967: 23)

When being reported to his family by the man who made it an article of faith to suspect those boys always, "Mensa's lips were tightly compressed; for he always made it clear that he was not afraid of the man who rang the church bell. Naturally, it was this open defiance which led the man to think that Mensa was a bad boy." (Djoleto 1967: 24).

But when he noticed that the turn of events did not please his father, he explained to him afterwards. He explained to his father:

"'Daddy, I didn't really mean any harm,'... 'the goat came and stole my food from me. I wanted to punish it but was not sure what I should do. Then I remembered what you once told me.'

'What did I tell you?' ...

'You told me that if the two soft balls were removed, the he-goat was kept out of mischief.'

'But I didn't tell you to go and do it yourself, did I?' Have you ever seen a boy do it or just anybody do it? People learn how to do it when they are grown up. An animal can be seriously harmed if it isn't properly done.'

'I'm sorry, Daddy, I don't know why I did it.'" [Djoleto 1967: 43]

Old Anang endeavoured to listen to his son, to understand his logic and reasoning, and to reason with him, straightening out the thinking of the child in contrast to the posture of the man who rang the Church bell.

*A future of Hope:*

The outcome of his bloody affair with the he-goat was that Little Mensah had to be removed from the environment of the village to a school far away from

home. He received the news with calm but what concerned him was what great changes such a move would make to his life in future. He knew he would miss his playmates in the village, but he was also aware of a hopeful future. What he wondered about was what the future exactly entailed. For this reason, too, he contemplated running back home from his new location; but his mother advised: "That won't do you any good. Your daddy won't be happy if you run back home. You see, your uncle is going to make a gentleman of you. He'll make you become a great man in future if you behave and do as he tells you."

He wanted to be convinced of the worthwhileness of relocating through the prospects of hope and promise such a future held for him. He enquired from his mother:

"Is he a great man himself?"

'In his own way, yes. He's a headteacher and well respected.'

'But they say in this country only doctors, lawyers and ministers who preach are the great men.'

I've heard about it but I don't understand it. In my opinion anybody whether a farmer or a carpenter who keeps out of mischief, helps his town or village not for his personal glory but for the good of all, is a great man.

Would you want me to be a farmer or a carpenter?' His mother answered:

'I want you to do well at school first, then the rest will follow.'" (Djoleto 1967: 69)

f) *Learning new things in a new environment: Who and what influenced Mensa most?*

Mensa was a person who learnt much from what he saw and heard, and what he saw and heard at the Accra market made a deep impression on him. He tried to register every detail, no matter how minute.

He also made friends quickly, and his new colleagues reckoned they should be very nice to him and become his best friends in order to benefit from the food he brought from the village. But Mensa disliked children who appeared to be proud and snobbish.

The differences between Mensa's upbringing and those of the new environment began to be apparent and set up a conflict with it. He exceeded what was known of the ordinary child. This was a challenge for the persons who were supposed to be responsible for his further training. It was going to pose a challenge for Mensa too, as they sought to suppress and oppress him instead of helping him to repress his unconscious urges as Old Anang did through dialogue and discussion, and practical demonstrations and illustrations for his son. Instead, he was met with suspicion and skepticism:

"What immediately struck Mrs Lomo was the articulateness of Mensa. She had all the time believed

that boys from the rural areas were bashful and tongue-tied whenever they came to the city. This one was different and she wondered what manner of boy he was. In any case, this being her first encounter with him, she tried to be as affable and as condescending as possible. And to evade Mensa's request as tactfully as she could, she told him that she would look into what he had complained of later and that in the meantime she would provide him with something to eat as he must be hungry." (Djoleto 1967: 82).

What his new guardians noticed about him set them strategizing about his 'castration' resembling the inexpert fashion in which the boys castrated the he-goat in the village: "Mensa, it was clear, was unconventional... The truth, was what his elders wanted to hear and he must say it in abject self-abasement. No doubt there were many grown-ups who had been so trained in this way, who said yes, when they should say no. Men who tried to please anybody in authority and inevitably carried through life a personality which was colourless, futile, spineless, time-serving and oft-times dangerous." (Djoleto 1967: 84)

Mr Lomo's methods of training children were through staged trials which were meant 'to instil fear into all the boys, to inculcate into them a sense of justice and righteousness and to make them realize that if they erred they could be sure of the consequences.' But when he encountered Mensa, his tried and tested methods which had all the while worked for him were bound to be challenged and inverted. Employing his old style, he told the other boys:

"Well, I know you're surprised to hear what I've just said. But it happens that I've known Mensa for some time and he's as bad as each and every one of you!" Mensa was so angry and upset by the summary of character given of him that he said involuntarily: "This man is funny! He's only seen me once and he's so cruel to me! Now he says I'm a bad boy. How did he know?"

*It gave Mr Lomo food for thought:*

"As Mr Lomo sat in his office, one thought exercised his mind. Why would Mensa speak the way he did? Was it because he was an incorrigibly bad boy or was it how he naturally spoke? He brooded over the last question for some time and suddenly an idea occurred to him. He wanted to find out for himself whether that was the real problem. He came to the house and asked Mensa to come along to his office. He was pleasant and affable. He asked Mensa to sit down on a wooden bench placed against the wall. Normally boys never sat down when they were in his office. They always stood erect in military fashion, their hands behind them the feet placed astride; neither at ease nor attention; they stood on the alert and in obeisance."



"He smiled and asked Mensa: 'Why did you hurt that goat in the village. Didn't you know it was a bad thing to do?'

'No, I didn't know. That goat was a nuisance. All the boys in the village hated it. It ate my food. It fought the other he-goats and worried the nanny-goats. My father had told me that if a goat was troublesome and it was castrated, it sobered down. Moreover, it would grow fat and the flesh tasted excellent when served.' (Djoleto 1967: 91- 92)

Thereupon, Mr Lomo, supposed his pre-suppositions about Mensa had now been proved right. The boy did not articulate himself through subtleties.

"The boy was ingenuous and spoke freely like an educated boy from an uneducated village. He had nothing to hide nor fear. He saw everything in either black or white; and would give vent to what he thought was true without a second thought. This was perhaps good, Mr Lomo vaguely felt, but all the same it could not be countenanced. It was a sign of simplicity, naivety and total backwardness. If allowed to flourish, it would give a lot of trouble to a civilized society. No good educational system, he was sure, would tolerate it. A good educational system should, no doubt, make a boy as docile as possible. It should make a boy a good diplomatist who would say he was not aware of something, not because he was not really aware of it, but because he could not be proved to be aware of it; he must be the kind of boy who should specialize in manufacturing white lies as a means of profiting from life. For example, the defence put up by Badu and Antwi was preferable to any blunt statement of fact that they fought over the bananas. Such truthfulness was anathema. It fetched punishment. It was illiterate to speak the truth and be punished. The good life demanded lying. It had to be so, it should be so and it must remain so. Who could go through life successfully without it? Abstruse philosophy is woven by great men to support it, not in all circumstances, but in some circumstances. Mensa could, when he had the mind to, say why he had done the wrong thing, even if saying so would incriminate him. The four Accra boys would do the wrong thing and say that it was never their intention to do it and that something beyond their control must have compelled them. To Mr Lomo, those four boys, no matter how black their lying was, were using the right language. It showed that they were responding successfully to correction; they were becoming trained and disciplined; they had discretion. Mensa's natural honesty was not to be tolerated; it was not to be fostered; he needed training to get rid of it otherwise, in future, he would embarrass organized society and organized society must survive not on occasional honesty but on endemic subtle lying." (Djoleto 1967: 93-94)

Mensa saw through the hypocrisy of Mr Lomo and rejected his approach. However, the things and methods that actually helped his maturity and judgements in contrast were his class teacher, nicknamed, 'I'll-twist-you' who taught him how to create the necessary nuances in his life and language, and the kindness of friends in the environment:

He was very happy to be in the school and felt proud in his school uniform: 'he was in his sacred, new khaki uniform.' And, "His full name had been entered in the school register and he felt important when the class teacher mentioned it during roll-call in a martial voice. He watched the teacher closely to see whether he was an ordinary mortal or a special breed of man reserved only for schools. Already, the personality of the teacher had profoundly impressed him and curiosity forced him to know why. On the whole, his caning punishments were more enjoyed than dreaded. If anything, it was his frowns that really scared the children to death.

Having thus taken a good look at his teacher and having heard so much already about him, Mensa was quite sure that he was going to get on excellently with this frail, old man who always walked three miles to school. It happened also that 'I'll-twist-you' was in turn eyeing him surreptitiously, taking an interest in him as a pupil. Why did he pick on him and eye him? Mensa thought about it for a few moments and finding no good answer to it, forgot about it entirely as many other things attracted his attention.

It was apparent that boys negotiate quite a lot among themselves, particularly in matters related to food. "During that lesson pupils were terribly busy, having engaged in clandestine negotiations. .... Such negotiations were tough, for children were more interested in immediate benefits than in future rewards. .... For a boy to be successful therefore at the negotiations, he must use all the imagination God had endowed him with, and paint a very rosy picture of what the one who gave would have in return. He must impress upon the giver that the next day would not take long to arrive and that his big cake would be the most delicious ever eaten by man. A business of this nature automatically precluded profitable teaching and class discipline was taken care of by business pupils not by the teacher." (Djoleto 1967: 102)

At break time, the behavior of his guardian's wife, Aunt Adzoa, or Mrs Lomo, who was one of the food vendors on the school premises made him sad and disappointed him. He hid himself in a corner and wept. He felt nobody had any love for him and life was devoid of joy. Not that he fully understood his plight but he felt that those who loved and cared for him had posted him to an alien spot when human beings existed not for him but for others. He was saved by another boy who noticed and approached to comfort him. The boy spoke softly and asked him, 'What's your name?'



His class teacher, 'I'll-twist-you', noticing his sadness, invited him to his desk. As Mensa stood close to his desk, he said: "Look here, my dear boy, I was born and bred in the countryside myself. In my time, life was easy and free. Nobody was taught honesty. Indeed, people were not sufficiently crooked to be dishonest. Now everything is not simple, my dear boy. You see, you got into trouble this morning because you said what you felt you should say, not what everyone expected you to say. My dear boy, if you want to survive in this world always say the things people would wish you to say or wish to hear and not what you think should be said. For example, if someone says 'Good morning' to you and you think it's a bad morning, you don't have to say 'Bad morning'. If you said that you'd be considered a lunatic. My dear boy, that's how the trouble starts until you have injustice paraded as justice. You probably don't understand me, but you'll learn in good time. My dear boy, I don't have to say much; you'll learn in good time. You see, I'm paid to do this or that when I am here. At home, I do what I like provided I don't hurt anybody. You have also come here to do this or that. When you've finished with schooling, you can do what you like provided you don't hurt anybody. Is that not funny, my dear boy? It is, it is! Life is funny, my dear boy. I've seen a bit of it, my dear boy. Whenever you're in trouble come and see me. You may go back and sit down but don't look that sad again, my dear boy!" (Djoleto 1967: 110-111).

Once a while, his class teacher would impart his philosophy of life to those children because he had boundless faith and confidence in them. He knew nonetheless that they would not understand him because they were so young. But he trusted that those children's memories would serve them long after they had finished with their basic education; they would remember his words and weigh them for what they were worth.

"He believed that the end-product of education was man's realization of what the life he faced was worth and his relationship with it; his rational grasp of his environment and of himself; his developed intellect that enabled him not to be committed necessarily or even at all to what all other men on earth thought and said; his freedom to seek the truth, the spiritual happiness or whatever faith he desired, upon which he could anchor his life which was buffered because the whole of creation was founded on treacherous restlessness and had ever remained restless and full of dismal uncertainties; and that the only certainty he could have would be the certainty of a never-ending battle in a settled style, to adjust his life which would be extinguished one day and would be lost to a dark nothingness. He had an inward contentment and was at peace with himself and his world. He sought after no economic efficiency upon which to base his happiness; he sought after hard thinking which made

him free from the cobwebs the modern man had woven over the earth. He was left alone and alone he stayed; he never tried to be at the top, and desperate ambition did not becloud his destiny." (Djoleto 1967: 112-3)

Mensa was overwhelmed by all that he had heard. From now onwards, he reflected on the talking to he had heard, interspersed with the caning sometimes. It dawned on him that he was now in a world which was not easy. "He could only distinguish between those who were good to him and those who were hostile to him. Why those people were what they were, he could not tell; he had neither the intellectual capacity nor the time for it. He sat down quietly not knowing how to manage to look cheerful, though at that moment he had some peace of mind because 'I'll-twist-you' had been nice to him." (Djoleto 1967: 114).

## VI. DISCUSSION

Amu Djoleto's (1967) narrative accords with Highet's (1951) observation that the young are trying desperately hard to become real people and to be individuals. It also accords with the observation that, to be able to influence the young, one ought to be able to convince them that he or she knows them. The methods for helping the young male-child to achieve this should be the preoccupation of the father and those who become the father-figures in his life, as much as it should pre-occupy the mother and the mother-figures in a male-child's life.

Those who tried methods of extreme surveillance, exhibiting the morbid epithet of making it their duty and having their own 'good reasons' for suspecting them always, like the man who rang the village church bell, are invariably hated by the male-child. Techniques such as those based upon Mr Lomo's hypocrisy which worked upon the principle that a child showed signs of 'simplicity, naivety and total backwardness' and were dangerous to society because they spoke the truth as they felt it articulately without fear or bashfulness did not work either. An educational endeavor built upon the principle that a boy must be made as docile as possible, making him a diplomatist who should 'specialize in manufacturing white lies as a means of profiting from life' only confirms the children in their undifferentiated unconscious condition and confusion. Highet (1951) summarizes the implications of such approaches poignantly:

"The young dislike their elders for having fixed minds. But they dislike them even more for being insincere. They themselves are simple, single-minded, straightforward, almost painfully naive. A hypocritical boy or girl is rare, and is always a monster or a spiritual cripple. They know grown-ups are clever, they know grown-ups hold the power. What they cannot

bear is that grown-ups should be deceitful. ... So they will tolerate a parent or a teacher who is energetic and violent, and sometimes even learn a good deal from him; but they loathe and despise a hypocrite." (Highet 1951:19).

*The effects of being lied to can be devastating as Burrow (2020: 22) expressed it:*

"That feedback between liar and lie-ee has immense psychological significance. It's the reason why, in fiction and in life, lies can have such a powerful effect. If they take us in it's because they work with our beliefs about what is likely to be true. And that's why the discovery that one has been lied to can give rise to such emotional chaos."

Consequently, Mr Lomo's mistakes and those whose education of the young were based upon the same principles like his create the conditions for future negative reactions from children who sense that a parent or teacher is trying to make them other than themselves into replicas of the teacher or parent. Highet (1951: 44-45) reiterates:

"Most important of all is a negative. Do not try to make the brilliant pupil a replica of yourself. To begin with, that would be impossible, because individuals differ and brilliant individuals diverge widely. Even if it were possible, it would be stupid: because much of a man's creative energy flows from his knowledge of his uniqueness and originality, whereas anyone who has been moulded to fit the pattern of another personality usually spends the rest of his life either trying to conform and crushing out spontaneous and creative impulses, or rebelling in that dreary uncreative way which consists in saying 'I don't care what I do, I just want to deny everything X stands for.' (For X, read 'my father', 'my mother', or 'my teacher').

The most effective approach to teaching the male-child to achieve their identities as human subjects, individuals, ready for participation in productivity, jettisoning the pleasure principle for the reality principle, forged within the symbolic order was achieved by Old Anang, and by the teacher who was nicknamed 'I'll-twist-you'. They adopted methods described by Palmer (2017) about teaching from within and from a position of identity and integrity, and also by Brookfield (2017) concerning teachers seeing themselves through the eyes of their students. 'I'll-twist you' became a mentor for Little Mensa: When he called Mensa to come forward, he described to him the complexities of life and living, and reassured him, 'Whenever you're in trouble come and see me. You may go back and sit down but don't look that sad again, my dear boy!' (Djoleto 1967: 111). And once a while, he imparted his philosophy of life to the children because he had boundless faith and confidence in them.

Thus, Djoleto (1967) presents the narrative of the castration of the he-goat in a double sense. It is first,

an event describing the naivety of the male-child, wishing to solve problems, but not knowing how to accomplish them in the appropriate way. Relying on the father's pronouncements, they proceed to act without seeking training. It makes them prone to naivety and misjudgements, and ironically making them create mischief like the he-goat. That leads to the second sense of the he-goat narrative as symbolic of what the character of the male-child resembles in its natural state when the unconscious dominates it – irrepressible, irresponsible, incomprehensible, insensitive, insensible, aggressive and destructive, and meriting abhorrence. The notion of castration introduced by Djoleto is a reference to the professional education and guidance of the male-child towards induction into the symbolic order and residence within the ability to repress the unconscious and the pleasure principle for the sake of transiting into the reality principle of living. By this, they are enabled to overcome the eternal infantilism which could characterize them otherwise through the domination of the unconscious. But as Old Anang insists, it must be carried out by experts and experienced human subjects, and not by just anyone, let alone a hypocrite, liar, or someone who has not himself successfully transited the symbolic order.

a) *Recommendations: Assisting and enabling the male-child to break the bonds of his childhood and lifting his eyes to the higher regions of the cosmos in contemporary society*

The Oedipus complex, which serves as the organizing principle of human growth into an individual and a human subject should not be discounted. It can be successfully negotiated and transitioned, and the drives it organizes duly achieved; in the same way, failure can result in its negotiation and transition, leaving a creature in its pre-oedipal stage who is anarchic, aggressive, incestuous, and without focus. A successful negotiation of the oedipal stage should be applauded, promoted, and strengthened; in the same fashion, failure in its negotiation should be duly acknowledged and efforts made to guide children to be able to make the transition. Failure to transit the Oedipus complex to cause a successful organization of drives must be recognized and acknowledged as such and should not be masked and encouraged as some democratic ideal where a child can be encouraged to do whatever they want or like. Such attitudes and perspectives constitute an abrogation of responsibility equal to the frustrated headteacher, Mr Lomo's hypocritical principles of education and training of children to become duplicitous and hypocritical.

Castration, as recommended by Amu Djoleto (1967), is not meant as a removal of the phallus of the male-child which is the status of his masculinity, but is a keen reference to the re-ordering of the drives of the male-child in line with the Oedipus complex and

symbolic order towards a civilizing end including repression, sublimation, productivity, and creativity.

Consequently, the consideration of the organization of capacity building events to support the male-child, to equip them with the requisite knowledge, information and skills for transiting from the pleasure principle to the reality principle is crucial. The training and activities towards achieving them will give much confidence and direction to the male-child. They will, thereby, be given the knowledge, skills and focus required for the male-child's development and maintenance of mental stability in a contemporary context which is ever-changing. It also calls attention to a focus upon and empowerment of those who can enable the achievement of this guidance and transition including parents, teachers, guardians and caregivers to be given all the resources and support they need to acquire the skills and training they require to enable the achievement of a successful transition of the male-child through the sensitive and crucial stage of growth where their identities are made as human subjects.

Without these, the male-child is bound to lose focus, pursue inappropriate goals, or find it difficult to achieve appropriate goals, and become prone to failure, depression, confusion and mental health instability and problems. The male-child ought to be able to learn and debunk the aberration that 'Hope and virtue are for the weak, for life's losers.' (Maglaque 2020:37). He ought to know that he can transcend nature into culture, break the bonds of his childhood, and lift his eyes to the higher regions of the cosmos to become a full citizen capable of creating civilization.

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# A Short Satisfaction Questionnaire for an Independent Medical Examination: A Pilot Study

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**Abstract- Objective:** This study was conducted to develop and validate a questionnaire to assess client satisfaction with an Independent Medical Examination (IME).

**Design:** The questionnaire (IMESQ) was developed as a short assessment of six items covering six domains relevant to an IME. The sample was tested for internal consistency reliability. Construct validity of the questionnaire was via a parallel measurement analysis.

**Participants:** Data were collected from 76 adult respondents (male = 44.7 %); mean age (42.9 ± 13.3 years).

**Results:** The questionnaire had good correlation of paired items (range  $r = 0.55$  to  $0.80$ ,  $M = 0.65$ ). The Cronbach's  $\alpha$  value of the questionnaire was  $.91$  and the split-halves reliability was  $.90$  suggesting good internal consistency. There was strong correlation ( $r_s = .82$ ) with a numerical satisfaction scale (NSS). Compared with a Surrogate score calculated from the NSS, the intrarater reliability was high (ICC  $.75$ ).

**Keywords:** *pilot study; independent medical examination; satisfaction questionnaire; internal consistency; validation; intrarater reliability; discordance; bland-altman analysis.*

**GJMR-K Classification:** NLMC: W 84.1



ASHORTSATISFACTIONQUESTIONNAIREFORANINDEPENDENTMEDICALEXAMINATIONAPILOTSTUDY

*Strictly as per the compliance and regulations of:*





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**Conclusions:** The IMESQ appears to be a valid tool to assess client satisfaction with an IME. Larger trials with more examiners are required. The questionnaire is a 360-degree audit that satisfies the requirements of the professional bodies for Continuing Professional Development.

**Keywords:** pilot study; independent medical examination; satisfaction questionnaire; internal consistency; validation; intrarater reliability; discordance; bland-altman analysis.

## 1. INTRODUCTION

The patient is a consumer of health services and thus has certain rights, putting an emphasis on the delivery of quality health care. Patient satisfaction is an important and commonly used indicator for measuring the quality in health care [1]. Communication and health-related behavior are key markers of patient satisfaction [2]. The three most important aspects in patient – doctor communication are creating a good interpersonal relationship, exchanging information, and involving the patient in making treatment-related decisions [3]. Treatment related decisions are not relevant when doing an independent medical examination (IME) for a third party.

A qualitative study identified three key interacting components; "Listening", "Asking for information", and "Giving information" as central and covering two-thirds of the identified interaction types [4]. A study of patient satisfaction in a disease specific setting identified four factors that displayed eigenvalues greater than 1.0: 'Interpersonal Skills,' 'Quality of Time,' 'Empathy,' and 'Information Exchange' [5].

There are numerous satisfaction surveys available. Consumer satisfaction surveys are used by different organisations and individuals for varying purposes. The patient satisfaction field has increasingly been moving towards disease or condition-specific patient satisfaction questionnaires focussing on decision making, treatment and outcome, tapping aspects of satisfaction that are unique to that disease [6]. Researchers have used modified versions of commonly used questionnaires which excluded subscales not applicable in the context of these studies [7].

Hawthorne demonstrated that a Short Assessment of Patient Satisfaction (SAPS) scale based on seven questions each covering a separate dimension could adequately assess patient satisfaction of health care [8]. The questionnaire was proven robust, with good internal consistency reliability and correlated well with several accepted longer questionnaires. However, the domains are unsuitable for an IME.

An IME is unique in medicine. It is an *objective medical examination on behalf of a third-party to confirm the extent of the subject's injuries*. The report is often used to confirm or deny benefits, coverage, or settlements, or provide steps for safe return to work. The IME doctor is not the patient's treating doctor or personal adviser, and diagnosis, treatment and outcome are not an issue. However, client satisfaction with the IME is not excluded. The circumstances sometimes considered adversarial by the client might heighten dissatisfaction.

A literature search using the PubMed data-base and the search terms "independent medical examination", "satisfaction", and "questionnaire" failed to identify any relevant publications. A random search found one paper reporting a satisfaction survey conducted on patients from a medico-legal consultation [9].

The aim of this study was to develop a short generic satisfaction questionnaire, with acceptable psychometric standards, suitable for use in the setting

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of an IME. The scale required sub-scales or domains relevant to the examination that more than likely would influence the patient's/client's satisfaction. The questionnaire needs to be self-administrated, brief, understandable and easy to complete by clients aged 18 years and older. Whether the responses were influenced by socio-demographic factors or health status needed exploring.

## II. MATERIALS AND METHODS

### a) Questionnaire Development

The domains were selected to address aspect of the consultation perceived to be the most likely factors to affect the client's satisfaction with the encounter, focussing on doctor-client relationship, communication, and the client's perception of the adequacy of the history-taking and examination. The five domains selected were: interpersonal manner, communication, technical skill (examination), perceived exchange of information, and time allocation. The outcome was assessed by a question on general satisfaction. The complete questionnaire (IMESQ) of six items is attached in Appendix 1. Each question addresses a single domain and each has a 5-point Likert scale response. The scales are ordinal, varied and not uniformly weighted. Four of the six questions were positively worded. The responses were scored from 1 (the worst) to 5 (best) giving a total score ranging from six to 30. The higher the total score the greater the satisfaction.

To test the construct validity and consistency of the questionnaire, the study included a 0-to-10 numerical scale of satisfaction (NSS) for comparison with the total score from the six items. A further question inquired as to whether the client would be "willing to undergo another examination with the doctor if required". This assumes that higher levels of satisfaction would positively relate to Willingness to be re-examined by the doctor. The choices of responses were: "yes", "no", and "maybe". At the end of the structured questionnaire, a text box for open-ended comments was included to accommodate the qualitative information provided by the respondents. However, commenting was optional.

The study included an additional five questions relating to items thought to be independent variables: gender, age (in four categories), whether the client was born in Australia, had previously undergone an IME, and whether working or not. The latter items were included to see if immigrants, previous experience of a similar examination, and not working influenced the client's perception of satisfaction.

The questionnaire was loaded into Google Forms which allows emailing of the questionnaire to the clients. Once completed, the forms are automatically returned to the sender's email address and

automatically downloaded. The program provides automatic collation and analysis of the total data presented in graphic form, and allows access to individual responses for in-depth analysis.

Some items perceived as probably independent including level of education achievement (Unqualified), domestic status (Partnered), and the EQ-5D 3L quality of life utility scores ( $M = .55$ ,  $SD = .16$ ,  $Mdn = .52$ ) and were added from the client's records for the in-depth analysis.

### b) Study Site

This was a cross-sectional study of clients/participants who attend the author for an IME between November 2021 and March 2022. Initially the questionnaire was emailed to the client after the examination. There was only one response from the first thirteen clients and emailing was abandoned because of the poor response. The questionnaire was administered following completion of the consultation before the client departed the office. This ensured a satisfactory number of responses. The participants completed and signed a written informed consent.

### c) Statistical Analysis

Data was collated into Excel and DATA tab for analysis. Primary analysis with Shapiro-Wilks test found that all data was not normally distributed except for chronological age. The items of the IMESQ, the total IMESQ score and the NSS were distributed with an asymmetrical left, negative skewness, with normal-like, left tails. As the item scores were ordinal and not normally distributed, Spearman's rank-order correlation coefficient was used to analyse the correlations for ordinal and continuous data. The rank-biserial correlation was used for continuous and ordinal data with binary data: "Willingness of further review", gender, Australian born, working, partnered (domestic status), and unqualified (no trade or tertiary qualification). Chi-square statistic was used for comparison of dichotomous and nominal data. For the descriptive purposes, an adapted Dancy and Reidy classification of the strength of correlation was used [10]. A  $p < 0.05$  was accepted as the level of significance.

Initial experience suggested that test-retest evaluation was unlikely to succeed. In lieu of test-retest validation, split-half correlation coefficient with Spearman-Brown split-halves reliability was performed comparing odd to even numbered items. The split-halves approach has the advantage that it is not dependent on memory, but is dependent on a high level of internal consistency.

Construct validity of the questionnaire was tested against alternate forms of measuring satisfaction. The total IMESQ score was compared with the NSS using Spearman's correlation. An alternative hypothesis was that satisfaction would correlate with a Willingness to be examined by the doctor again. The potential future

utilisation of the service was tested using rank-biserial correlation. The impact of demographic factors on the IMESQ was explored.

Paired inter-Item correlations, Spearman-Brown split-halves reliability and Cronbach's alpha coefficient were used to test internal consistency reliability to determine the extent to which all of the items in the model measure the different aspects of the satisfaction [11]. Although all items contained non-normally distributed data which violates the axioms for using Cronbach's alpha, studies have reported it as a robust measure [12]. Alpha coefficient 0.70 or greater was considered sufficiently reliable [13]. Before performing a Principal Components Analysis (PCA), the suitability of the data for that analysis was tested by the Kaiser-Meyer-Olkin values and Bartlett's Test of Sphericity.

To test the accuracy of the participants' responses, intrarater reliability was assessed using Intra Class Coefficient (ICC) based on the analysis of variance (ANOVA) models [14-17]. The Concordance Correlation Coefficient (CCC) was calculated. Unlike the calculation of the ICC which assumes normal

distribution of data, Lin's CCC is the correlation of point estimates in relation to the 45° line through the origin and is suitable for non-normal data [18,19]. A Bland-Altman analysis identified discordant responses (Outliers) due to possible confounding factors or client bias [20-22]. The impact of demographic factors on the discordant data was explored.

### III. RESULTS

There were 76 respondents. All questionnaires were completed without missing information. Metric and ordinal data was assessed for normality of distribution using Shapiro Wilk statistic. Only chronological age ( $M = 42.9, SD = 13.3, Range [18, 73]$ ) was normally distributed.

The independent variables and descriptive data defining the demographics of the cohort is summarised in Table 1. There was a statistically significant relationship between Male and Unqualified,  $\chi^2(1) = 11.13, p = .001$ . Males were more likely to be unqualified, Odds ratio = 5.4, 95% CI [1.9, 15.0].

Table 1: Details of the Independent Variables

	Frequency	% of Cases
Male	34	45%
<40yo	27	36%
Unqualified	27	36%
Partnered	53	70%
Australian born	50	66%
Working	48	63%
Previous IME	36	47%
EQ5D <0.50	13	17%

#### a) The Questionnaire

Total scores for the IMESQ ranged from 18 to 30 with 36% of the participants having the maximum score of 30 ( $M = 29, SD = 3.17; Mdn = 29, Q1 = 25$ ). The ceiling for each Item ranged from 49% to 55% and floor effect from 4% to 11%. As expected, multiple logistic regression indicated that there was a very strong collective significant effect between all Items and each Item and the IMESQ,  $\chi^2(9,76) = 90.27, p < .001, R^2_N = .96$ . The power for the entire model was medium (.67). Spearman correlation showed that there was a low but significant positive correlation between chronological Age and IMESQ,  $r(74) = 0.28, p = .015$ . A significant, small negative correlation was also noted between Unqualified and IMESQ,  $r(74) = -0.25, p = .033$ . The IMESQ had no statistical association with the other independent variables.

#### b) Internal Consistency Reliability

Inter-item correlation was high for all items indicating that the questionnaire is possibly unidirectional and that each dimension relates well to all others (Table 2). Cronbach's alpha coefficient was  $\alpha = .91$ . The corrected item-total correlations show that each item was consistent with the other items taken together (Table 3). Cronbach's alpha when each item was sequentially deleted was no greater than Cronbach's alpha for the whole scale. The high alpha coefficient indicates a high level of internal consistency reliability of the questionnaire and the total score obtained by summing the responses across all items reflects the same construct and the possibility that the questionnaire may be unidimensional [23].

c) *Exploratory Factor Analysis (EFA)*

Kaiser-Meyer-Olkin Measure of sampling adequacy was 0.87. A KMO value between 0.7 and 0.8 is good and suitable for factor analysis [24]. Bartlett's Test of Sphericity was also significant ( $\chi^2 (15) = 308.56, p < .001$ ) confirming at least one significant correlation between two of the items [25].

Two of the assumptions for EFA were not met; the sample does not have multivariate normality and the sample size is small. Factor analysis was considered suitable. The total variance across all dimensions is 6 (Table 4). The two principal components explain 79.3% of the variance within the model. Only the first component has an eigenvalue greater than 1; all but the sixth component having an eigenvalue greater than 0.3. A Rotated Component Matrix (Varimax) and biplot confirmed the questionnaire was unidirectional.

d) *Split-Halves Correlation*

The IMESQ was divided into odd and even numbered questions for purpose of a split-half correlation. A Spearman's correlation between variables Odds and Evens showed a high, positive correlation between the variables,  $r (74) = 0.78, p = <.001$ . Pearson's correlation showed a higher, positive correlation,  $r (74) = 0.82, p = <.001$  and the Spearman-Brown-adjusted Pearson correlation for reliability was  $r_{SB} = 0.90$ .

e) *Construct Validation*  
*Willingness*

Sixty-two (82%) of the participants indicated a "Willingness to submit for another examination if required" while the remaining fourteen participants indicated "maybe". A rank-biserial correlation between variables Willingness and IMESQ showed a medium, positive correlation,  $r (74) = 0.41, p = <.001$ . Univariate analysis of correlations between the Items and Willingness showed moderate association of all Items ranging from  $r (74) = .31$  to  $r (74) = .45 (p < .01)$ . The Kruskal-Wallis test showed that there was a significant difference in mean ranks between the Items and Willingness,  $\chi^2 (6) = 248.91, p < .001$ . The Dunn-Bonferroni test revealed that the pairwise group comparisons of all Items with Willingness were significantly different ( $p < .01$ ). Logistic regression analysis showed that the model as a whole was significant at predicting a Willingness to further examination, ( $\chi^2 (9,72) = 23.01, p = .006, R^2_N = .42$ ). Backward step-wise analysis found that at ease was the sole predictor,  $\chi^2 (1) = 11.75, p \text{ value} = <.001$ . Willingness had no statistically significant association with any confounder.

If a suboptimal level of satisfaction is set at scores where both the IMESQ and NSS are in the first quartile, that is an IMESQ  $<25$  and NSS  $<8$ , then the criteria applies to 10 participants (13% of the cohort.). Of

these participants, 8 were unwilling to submit to further examination compared with 6 of the remaining cohort. Participants who had low scores for both the IMESQ and NSS were forty times more likely (OR = 40.0, 95% CI [6.9, 233]) to be unwilling to undergo further examination,  $\chi^2 (1) = 29.06, p < .001$ .

f) *Numerical Satisfaction Scale*

Scores on the Numerical Satisfaction Scale (NSS) ranged from 5 to 10 with 42% giving the maximum score ( $M = 8.78, SD = 1.36, Mdn = 9, Q1 = 8$ ). The distribution of data is shown in Figure 1. There was a strong correlation between the IMESQ and the NSS ( $r (74) = 0.82, p = <.001$ ). The priori power was .76. Neither measure contained outliers. There is a medium, positive correlation between Willingness and NSS,  $r (74) = 0.45, p = <.001$ . Individually, all questionnaire Items had a strong correlation with the NSS, ranging from  $r (74) = .58$  to  $r = .70, p < 0.001$ . The results of backward step-wise logistics regression indicated that there was a strong collective significant effect between the Items and NSS,  $\chi^2 (9,76) = 53.34, p < .001, R^2_N = 0.67$ ). The individual predictors were examined further and identified Examination and Satisfaction as the only significant predictors in the model. NSS had no association with any demographic factors.

g) *Concordance*

A Surrogate score was devised based on the "perfect" relationship between the NSS and the IMESQ being identical measures of participant's satisfaction. The NSS score ranges from zero to 10. The IMESQ ranges from a minimum of six to a maximum of 30. The equation for the Surrogate score was  $5 + 2.5 * NSS$  giving a range of five to 30. The Surrogate score was calculated for each participant for comparison with the IMESQ for analysis of association and discordance (Figure 1).

A Spearman correlation was performed to reaffirm the correlation between variables IMESQ, Surrogate score and NSS. There correlation between Surrogate and NSS was  $r (74) = 1$ . The correlation between IMESQ and Surrogate score was consistent with the correlation between the IMESQ and NSS,  $r (74) = 0.82, p = <.001$ .

A Wilcoxon Signed-Rank test showed that there is a non-significant small difference between IMESQ ( $Mdn = 29$ ) and Surrogate scores ( $Mdn = 27.5$ ),  $z = -1.7, p = .085, r = -0.25$ ). A paired t-test for dependent samples also showed that this difference was small and was not statistically significant,  $t (75) = 1.41, p = .161, d = .23$ . Only 37 (49%) of the 76 data pairs were concordant. The Kendall tau coefficient ( $\tau (76) = 0.03$ ) was poor, equivalent to a random response.

The means and standard deviations of the IMESQ ( $Mn = 27.3, SD = 3.16$ ) and Surrogate scale

( $Mn = 26.9$ ,  $SD = 3.41$ ) are similar. The distribution of both have similar asymmetrical, left/negative skew with long left tails (skew  $-1.15$ ,  $-0.88$  respectively). The Shapiro Wilk analysis shows that both measures were non-normal distributions.

The Levene's test found the variances are not significantly different for the IMESQ and Surrogate score, satisfying the assumption of homogeneity of variance,  $F(1,150) = 7.12$ ,  $p = .398$ . The Brown-Forsythe the  $F$  two-sample test for variance also found no significant difference,  $F(75,75) = .87$ ,  $p = .266$ . The IMESQ and Surrogate scores have equivalent variances. The assumption for both tests was that the distribution of data was normal.

#### h) Intra-Rater Reliability

The rater consistency was determined by ICC reliability calculated from an Analysis of Variance by three methods [16,17]:

ICC (A, 1)  $\rho = .750$  (.632 - .834),  $F(75,76) = 7.01$ ,  $p < .001$ ,

ICC (C, 3)  $\rho = .753$  (.634 - .834),  $F(75, 75) = 7.10$ ,  $p < .001$

ICC (A, 3)  $\rho = .751$  (.634 - .834),  $F(75, 75) = 7.10$ ,  $p < .001$ .

According to Cichetti and Sparrow, the intrarater reliability is good [26]. The ICCs calculated from the data are approximately equal and any bias is likely to be small or negligible [17]. However, ANOVA is poor at detecting bias [27].

Lin's CCC is  $\rho_c = .75$ ,  $F(1,75) = 6.31$ ,  $p < .001$ , which according to McBride, the concordance between the IMESQ and Surrogate scale is poor compared to a gold standard measurement [28]. Others would disagree, the threshold of acceptable reliability should vary with the circumstances [29, 30]. Irrespective of the quantitative measure of reliability, there is evidence of intrarater discordance.

#### i) Discordance - Bland-Altman analysis

Spearman correlation showed that there was a significant small to medium positive correlation between Mean and Difference,  $r(74) = 0.32$ ,  $p = .005$ . Simple linear regression was used to test if Mean of the scores significantly predicted the Difference in scores. The fitted regression model was: Difference =  $2.62 - 0.08 * \text{Mean}$ . The constant is positive suggesting that the questionnaire may have a small positive bias. The overall regression was not statistically significant ( $F(1, 74) = 0.91$ ,  $p = .343$ ,  $R^2 = .012$ ). The Mean of the two scores does not significantly predicted the Difference in scores ( $\beta = -.08$ ,  $p = .344$ ). The coefficient for the variable Mean in the population is not different from zero. This result is unlikely to reflect the real circumstances where some participants may intentionally or subconsciously underrate the responses

to the questionnaire as dissent bias and others who overrate the responses as acquiescence bias.

#### j) Outliers

Outliers were identified by a Bland-Altman analysis of the Mean score and the Difference between the IMESQ and the Surrogate score (Figure 2). Note that the assumption of a normal distribution of Difference was not met ( $W(76) = .87$ ,  $p < .001$ ). There were four data points outside the limits of agreement ( $M \pm 1.96 * SD$ ) for the Difference in scores ( $< -4.15$ ,  $> 4.90$ ); three below and one above. There were 14 Outliers ( $< -2.08$ ,  $> 2.45$ ) calculated using the Tukey Fences ( $k = 1.5$ ) algorithm representing 18% of the sample. Five were low outliers underrating the IMESQ relative to the NSS and Surrogate scores, and nine were over raters where the responses to the questions were exaggerated.

Rank-biserial correlation showed that there was no significant correlation between Difference and Outlier,  $r(74) = 0.20$ ,  $p = .088$ . Rank-biserial correlation showed that there was a significant negative correlation between IMESQ and Outlier,  $r(74) = -0.33$ ,  $p < .001$ . Univariate analysis showed that Items 1, 2 and 4 in the questionnaire had a small negative but significant correlation with Outliers (range  $r(74) = -.29$ , to  $r = -.34$ ],  $p < .05$ ). The Kruskal-Wallis test showed that there was a significant difference in mean ranks between the Items and Outliers,  $\chi^2(6) = 248.91$ ,  $p < .001$ . The Dunn-Bonferroni test revealed that the pairwise group comparisons of all Items with Outliers were significantly different ( $p < .001$ ). Logistic regression analysis to examine the influence of the Items on the variable, Outlier, to predict the value "1" showed that the model as a whole was not significant,  $\chi^2(9,76) = 16.02$ ,  $p = .067$ ,  $R^2_N = .31$ . Backward step-wise analysis found that At ease (Item 1) was the sole predictor,  $\chi^2(1) = 8.56$ ,  $p = .003$ ,  $R^2_N = .15$ . A Chi-square test found no statistically significant relationship between Outlier and Willingness,  $\chi^2(1) = 0.33$ ,  $p = .569$ . No association was found between any of the independent variables and Outliers. When the Outliers were divided into Underraters (coded -1, Difference  $< -2.08$ ) and Overraters (coded 1, Difference  $> 2.45$ ), analysis identified a significant association between Under/Over raters and gender. Underraters were entirely male whereas females accounted for two-thirds of the overraters (Table 5). A Chi-square test was performed between Male and Under/Over Outlier. At least one of the expected cell frequencies were less than 5. Therefore, the assumptions for the test were not met. There was a statistically significant relationship between Male and Under/Over Outlier,  $\chi^2(2) = 6.85$ ,  $p = .033$ . A Kruskal-Wallis test showed that there is a significant difference between the categories of the independent variable Under/Over-rater with respect to the dependent variable Male,  $\chi^2(2) = 6.76$ ,  $p = .034$ . The Dunn-Bonferroni test showed that the pairwise group



comparison of 0 to -1 (Underrater) has an adjusted  $p$ -value of less than 0.05 (Table 6).

Further analysis showed that if 4 points difference between the IMESQ and the Surrogate score was arbitrarily the cut-off for potential bias, then all but one Outlier identified by analysis would still be Outliers. This single case would be considered false negative.

#### IV. DISCUSSION

This study has shown that the IMESQ is a valid, unidimensional measure of patient satisfaction following an independent medical examination. The short questionnaire has been shown to produce meaningful results in the assessment of client satisfaction. Although the questions had a high ceiling effect, the aim of the IMESQ is not to identify high achievement but to identify deficiencies which can be corrected.

Inter-item correlation is high for all pairs of Items and each dimension relates well to all others. The internal consistency reliability is excellent, greater than the commonly recommended minimum value for Cronbach's alpha (0.70) [13]. A strong split-halves reliability is further evidence of internal consistency.

Construct validity has been demonstrated. The parallel measure, NSS, correlates strongly with the IMESQ. Although not strictly a direct measurement of satisfaction, client Willingness correlates moderately with the IMESQ. Willingness may be subject to confounding factors such as indecision or client bias. In the absence of a correlation with Outlier, it cannot be concluded that the responses to Willingness in this sample were biased. Some client might have difficulty expressing dissatisfaction with the service while they were still in the office, which could result in overestimated satisfaction of care. Nonetheless, the findings indicate that the IMESQ can be used to obtain reliable and valid information of satisfaction with an IME.

At ease was a predictor of Willingness and Outlying scores. "Interpersonal manner" appears to be the dominant determinant of client satisfaction on factor analysis. Communication skills, putting the client at ease and being respectful were dominant determinants of client satisfaction.

With the exception of chronological age and being unqualified, scores on the IMESQ were not influenced by the other socio-demographic characteristics. The association between chronological age and the IMESQ was small indicating that the score was better with age but not specifically for clients over 40 years of age. Other researchers have noted that satisfaction increased with age [31, 32]. The IMESQ was negatively associated with having no educational qualifications and may reflect a pessimistic outlook on returning to work. Furthermore, the IMESQ was not influenced by quality of life/general health status. This contrasts with other researchers who found that

satisfaction correlated with the health status and emotional well-being [33-35].

The client who is angry and frustrated by the cause of the injury (blame), medical management, and/or processing of the claim may intentionally or subconsciously underrate the scores on the questionnaire and produce low IMESQ scores due to dissent bias. From the data, it has been shown that the responses can be discordant. A small group, all male, was shown to underrate their responses, and another group, predominantly female, to exaggerate their responses. The addition of suitably a worded question representing a "Dissatisfaction" domain directed to assessing dissatisfaction with treatment and management might yield useful information of circumstances beyond the scope of the IME that influence the responses to the questions. Given that Outliers had a difference of 4 between the IMESQ and Surrogate score calculated from the NSS, an additional 5-point Likert scale question with reverse scores could be considered to gauge the impact of dissatisfaction as a confounder on client responses. A reverse score for a Dissatisfaction item may not alter the scoring balance.

##### a) *Limitations*

The study has some fundamental limitations which probably do not invalidate the conclusions. The study is an underpowered, small cohort of clients and one examiner. The study needs to be expanded to include several examiners and translated into other non-English languages.

Parametric statistical methods are not appropriate when using Likert scales as they violate the assumptions of use. Studies have shown that parametric statistics accommodate the violations of these assumptions and can be used without the concern of answers being invalidated [12]. Criticism of the statistical analysis may be well founded.

The Likert responses for each item were not rated equally. Only two of the six items had a central neutral response. The inclusion of a neutral response may represent neutral bias, true indecision or uncertainty. The use of an equivalent rating scale to all questions including a neutral central response would make for approximately equivalent weighting of all scales.

The use of balanced six or seven point Likert scales with more extreme anchors could reduce negative skew and the ceiling effect which was 42% to 67% across all items in this model. However, the purpose of the questionnaire is not the identification of high achievement but marginal or poor performance areas which can be addressed and improved. There is probably no advantage beyond a five-point Likert scale with a central neutral response if the purpose of the questionnaire is to identify suboptimal performance. High ceiling effects indicate a limited instrument range,



possible response bias, and inadequate questionnaire performance [36]. The floor effect of less than 15% for all items is within the recommended range [37].

Additional domains could be considered to expand the scope of assessment of the IME process. A question about the initial "Introduction" which makes the client aware of the process and improves the interpersonal relationship has value. The inclusion of a question to measure the clarity and use of "Common language" has strong merit. Doctors often use medical language with which the client may not be familiar and the subsequent response to an inquiry may be inadvertently inappropriate.

The issue of bias frequently occurs when using Likert scales. The high ceiling in the individual item scales more than likely has an element of acquiescent bias. This study has shown evidence of both underrated and exaggerated responses. If suboptimal measures are defined as a total IMESQ score less than 25 and a NSS score less than 8 (these being the first quartile), 10 (13%) respondents met these criteria. This would seem a reasonable threshold level to raise concerns.

## V. CONCLUSIONS

In conclusion, scores on the IMESQ questionnaire can be used as a measure of global satisfaction with an Independent Medical Examination. The questionnaire is valid and has good internal consistency, reliability and reproducibility. The questionnaire is not influenced by socio-demographic, general health or psychological distress. All six items represent six different domains. Where the results of the questionnaire do not meet the level of "satisfactory", the weaker aspects of the IME examination can be identified and addressed. The IMESQ fulfils the criteria of a 360-degree audit. It satisfies the requirements of the various professional bodies for Continuing Professional Development. It may, on occasions be useful evidence in medical defence of a claim relating to the IME, if the allegation is not concordant with the responses given on the questionnaire.

### Abbreviations

IMESQ	Independent Medical Examination Satisfaction Questionnaire
Item	Question, domain
NSS	Numerical satisfaction scale

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5. How good was this doctor at providing time for your consultation? (plenty of time, not rushed)
  - Very good
  - Good
  - Satisfactory
  - Poor
  - Very poor
6. Overall, how satisfied are you with your consultation? (Please check only one box)
  - Very satisfied
  - Satisfied
  - Neither satisfied or dissatisfied
  - Dissatisfied
  - Very dissatisfied
7. On a 0-to-10 NAS scale how satisfied are you with the consultation where 0 = absolutely dissatisfied and 10 = almost satisfied.

0 1 2 3 4 5 6 7 8 9 10

Verv dissatisfied ○ ○ ○ ○ ○ ○ ○ ○ ○ ○ Verv satisfied

Appendix

IMESQ

1. How good was this doctor at making you feel at ease? (polite, being friendly towards you, treating you with respect; not cold, abrupt or apparently disinterested)
  - Very good
  - Good
  - Satisfactory
  - Poor
  - Very poor
2. How good was this doctor at letting you tell your "story" and listening? (paying attention, giving you time to fully describe your illness in your own words)
  - Very good
  - Good
  - Satisfactory
  - Poor
  - Very poor
3. How good was the doctor at very carefully checking everything when examining you? (meticulous and thorough)
  - Very good
  - Good
  - Satisfactory
  - Poor
  - Very poor
4. How confident are you that this doctor fully understanding your condition... (that he had accurately understood your concerns; not overlooking or dismissing anything)
  - No, definitely not
  - No, generally not
  - Uncertain
  - Yes, generally
  - Yes, definitely
8. Would you be willing to be examined by this doctor again?
  - No
  - Maybe
  - Yes

*Table 1:* Details of the Independent Variables

	Frequency	% of Cases
Partnered	53	69.74%
Australian born	50	65.79%
Working	48	63.16%
Previous IME	36	47.37%
Male	34	44.74%
<40yo	27	35.53%
Unqualified	27	35.53%

*Table 2:* Matrix of Inter-Item Correlations

	At ease	Tell story & listening	Examination	Information exchange	Time	Satisfaction
At ease	1	0.70	0.72	0.58	0.72	0.57
Tell story & listening	0.70	1	0.80	0.59	0.76	0.69
Examination	0.72	0.80	1	0.59	0.67	0.55
Information exchange	0.58	0.59	0.59	1	0.60	0.59
Time	0.72	0.76	0.67	0.60	1	0.61
Satisfaction	0.57	0.69	0.55	0.59	0.61	1

*Table 3:* The Cronbach's Alpha Analysis for the Six Item IMESQ

	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
At ease	0.8	0.89
Tell story & listening	0.81	0.89
Examination	0.73	0.90
Information exchange	0.68	0.91
Time	0.82	0.89
Satisfaction	0.72	0.90



*Table 4:* Data from the Principle Component Analysis

Component	Total	% of variance - Eigenvalue	Accumulated %	Extraction	Component matrix - Component 1	Rotated Component Matrix – Component 1
1	4.24	70.64	70.64	0.76	0.87	0.87
2	0.52	8.67	79.31	0.77	0.88	0.88
3	0.47	7.86	87.16	0.67	0.82	0.82
4	0.37	6.09	93.25	0.6	0.78	0.78
5	0.23	3.8	97.05	0.79	0.89	0.89
6	0.18	2.95	100	0.65	0.81	0.81

*Table 5:* Distribution of Outliers According to Gender

		Female	Male	Total
Under-rater	-1	0	5	5
	0	36	26	62
Over-rater	1	6	3	9
	Total	42	34	76

*Table 6:* Results of Dunn-Bonferroni Test for Under/Over Outliers (-1/1)

	Test Statistic	Std. Error	Std. Test Statistic	p	Adj. p
0 : -1	-22.06	8.84	-2.5	.013	.038
0 : 1	3.27	6.78	0.48	.63	1
-1 : 1	25.33	10.61	2.39	.017	.051

*Adj. P: Values Adjusted with Bonferroni Correction*





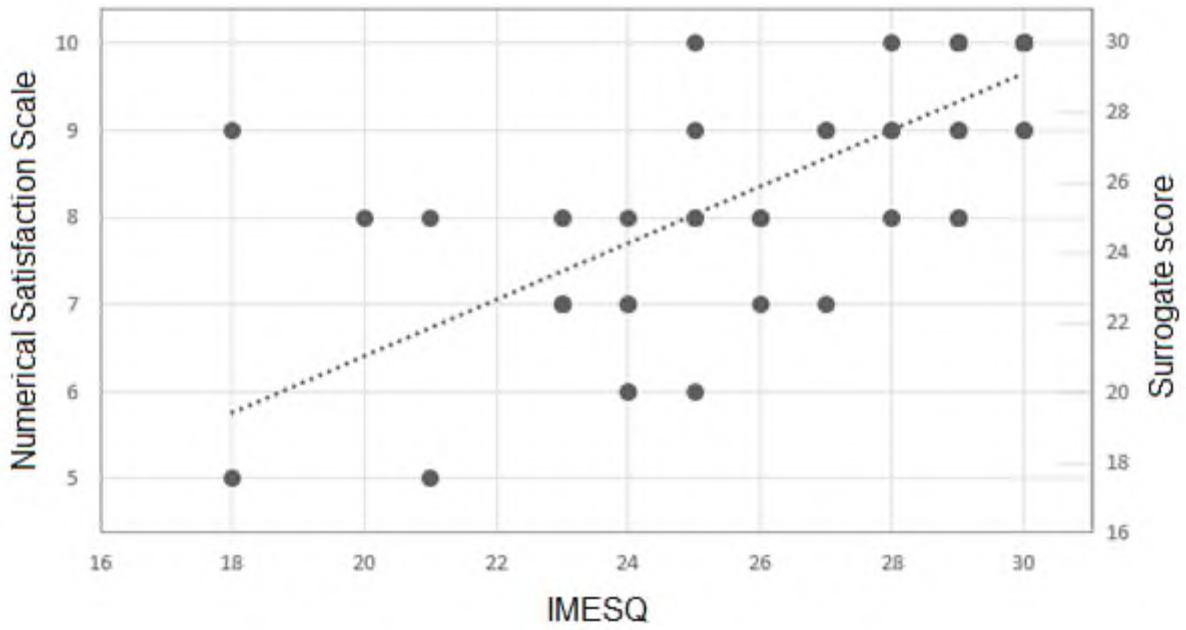


Figure 1: Composite Regression Plot of IMESQ and NSS / Surrogate Scores. For the Purpose of Interpreting Lin's CCC, the Trendline can be Compared with the "Gold Standard" (16,16 To 30,30)

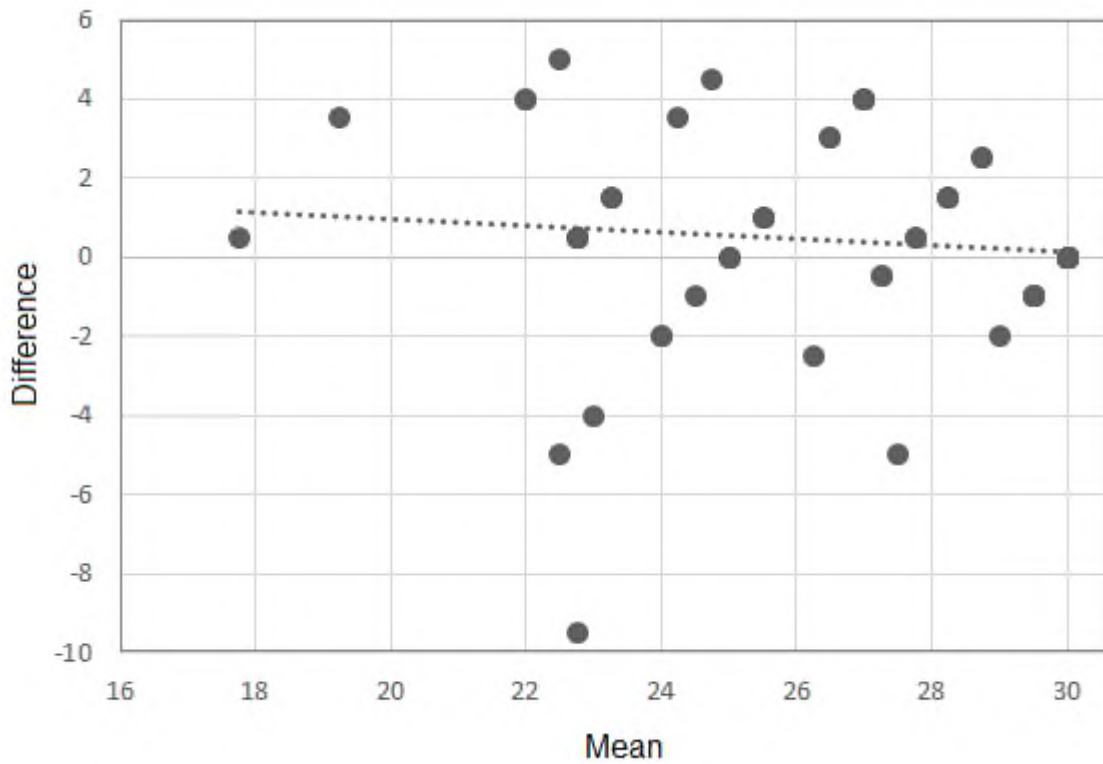


Figure 2: Bland-Altman Plot: Limits of Agreement  $<-4.1, >4.1$ ; Outliers  $<-2.4, >2.3$ . The Trendline is an Index of Bias [38]



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## Viscosity Measurement Results of a Commercially Available Universal Design Food (UDF: Can be Crushed with the Tongue) using the Line Spread Test (LST)

By Sahoko Ito, Shoko Kondo, Mayumi Hirabayashi & Naomi Katayama

*Nagoya Women's University*

**Abstract-** In Japan, which is a super-aged society, people need the nursing care foods in recent years. For the prevention of aspiration pneumonia, there is a demand for safe and delicious nursing care food for not only patients but also senior citizen. To create food for swallowing that can be easily prepared even at ordinary homes, among the previous studies that have already been reported, using a type of universal design food, but that can be crushed with the tongue, for which the results have not yet been shown, is suitable or not for nursing care food is not sure. To obtain the viscosity, we investigated using eight types of thickeners and reported them. After adding 1 g, 2 g, and 3 g of each of the eight types of thickeners to commercially available shrimp gratin, a line spread test (LST) was performed using a superficial thickness measuring plate (manufactured by Saraya Co., Ltd.). As a result, by adding 1 g, it was possible to obtain a thick viscosity of 30 mm or more and less than 32 mm, which is thought to promote safe swallowing.

**Keywords:** *nursing care food, universal design food, line spread test, thickener.*

**GJMR-K Classification:** *NLM Code: WB 400*



VISCO S I T Y M E A S U R E M E N T R E S U L T S O F A C O M M E R C I A L L Y A V A I L A B L E U N I V E R S A L D E S I G N F O O D U D F C A N B E C R U S H E D W I T H T H E L O N G U E U S I N G T H E L I N E S P R E A D T E S T L S T

*Strictly as per the compliance and regulations of:*



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# Viscosity Measurement Results of a Commercially Available Universal Design Food (UDF: Can be Crushed with the Tongue) using the Line Spread Test (LST)

Comparison after Adding Eight Different Types of Thickeners to Shrimp Gratin

Sahoko Ito<sup>α</sup>, Shoko Kondo<sup>σ</sup>, Mayumi Hirabayashi<sup>ρ</sup> & Naomi Katayama<sup>ω</sup>

**Abstract-** In Japan, which is a super-aged society, people need the nursing care foods in recent years. For the prevention of aspiration pneumonia, there is a demand for safe and delicious nursing care food for not only patients but also senior citizen. To create food for swallowing that can be easily prepared even at ordinary homes, among the previous studies that have already been reported, using a type of universal design food, but that can be crushed with the tongue, for which the results have not yet been shown, is suitable or not for nursing care food is not sure. To obtain the viscosity, we investigated using eight types of thickeners and reported them. After adding 1 g, 2 g, and 3 g of each of the eight types of thickeners to commercially available shrimp gratin, a line spread test (LST) was performed using a superficial thickness measuring plate (manufactured by Saraya Co., Ltd.). As a result, by adding 1 g, it was possible to obtain a thick viscosity of 30 mm or more and less than 32 mm, which is thought to promote safe swallowing. Eight kinds of thickeners are commercially available products containing xanthan gum, among which the thickener containing xanthan gum, calcium lactate, and trisodium citrate showed the highest viscosity. In the future, it will be necessary to investigate the effects of thickeners on universal design foods (UDF) that can be crushed with the tongue and have different nutritional values.

**Keywords:** nursing care food, universal design food, line spread test, thickener.

## I. INTRODUCTION

As of October 1, 2021, the total population of Japan was 125.5 million (announcement by the Statistics Bureau of the Ministry of Internal Affairs and Communications). The population aged 65 and over is 36.21 million (15.72 million men, 20.49 million women), accounting for 28.9% of the total population. Among the population aged 65 and over, the population aged 65-74 is 17.54 million (8.39 million men, 9.15

million women), accounting for 14.0% of the total population. The population aged 75 and over is 18.67 million (7.33 million males and 11.34 million females), accounting for 14.9% of the total population, which exceeds those aged 65-74. It is speculated that the need for nursing care food will increase in Japan, which will become an increasingly aged society in the future. To prevent aspiration pneumonia, it is necessary to provide safe and delicious nursing care food<sup>1,2</sup>. In a previous study, Shyoko Kondo<sup>3,4</sup> and Mayumi Hirabayashi<sup>5,6</sup> reported the results of a line spread test on a commercially available universal design hood (UDF) that does not require chewing, can be crushed with the gums, and can be chewed quickly. However, there are no reports yet regarding crushing with the tongue. Therefore, in this study, among the commercially available universal design foods (UDF) that are available in general households, foods labeled as being crushable with the tongue were treated with a simple thickening board (manufactured by Saraya Co., Ltd.) with eight types of thickeners. The purpose was to measure the viscosity after addition and to indicate the amount of thickener to be added to obtain a concentration that can be safely swallowed.

## II. MATERIALS AND METHODS

Shrimp gratin, which is a universal design food (UDF) available on the market, was labeled as being crushable with the tongue. Is the nutritional value of shrimp gratin labeled as crushable with the tongue shown in Table 1.

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Table 1 Nutritional value of commercial UDF (cruch with tongue)

Product name	Energy	Protein	Fat	Carbohydrates (g)		sodium	Calcium
	(kcal)	(g)	(g)	Sugar (g)	Dietary fiber (g)	(mg)	(g)
Shrimp gratin	76	1.6	5	5.8	0.6	0.5	131

Furthermore, after adding 1 g, 2 g, and 3 g of each of the eight commercially available thickeners (A-H) to the shrimp gratin, the viscosity after 30 seconds and 5 minutes was measured using a superficial

thickness measuring plate (manufactured by Saraya Co., Ltd.). Line spread test (LST) was performed using. The ingredients of the eight types of thickeners are listed, and the nutritional elements are listed in Table 2.

Table 2 Content and nutritional value of eight types of thickeners

Contents	Nutrient contents (per 100g)									
	Energy (kcal)	Protein (g)	Fat (g)	Carbohydrates (g)		sodium (mg)	Potassium (g)	Calcium (g)	Phosphorus (g)	Iron (g)
				Sugar (g)	Dietary fiber (g)					
A Dextriin, Polysaccharide thickener, Starch	226	1.2	0.2	64.4	25.1	188~405	10~20	868	18.5	1.5
B Dextriin, Polysaccharide thickener	292	0.5	0	60.5	23.4	1550				
C Dextriin, Xanthan gum, Calcium lactate, Trisodium citrate	346	0.5	0		86					
D Dextriin, Polysaccharide thickener, CMC	390	0.8	0	54.9	34.3	1850	144	7.4	71	0.47
E Dextriin, Polysaccharide thickener, Potassium chloride, Sucralose	263		0~1.0	64.3	23.5	540	870	13	72	0.3
F Dextriin, Polysaccharide thickener, Potassium chloride	240		0	54	35	1180				
G Dextriin, Polysaccharide thickener, Sodium chloride	260	0.7	0	46	37					
H Dextriin, Polysaccharide thickener, Emulsifier	288	7.3	0.4~1.7	54	33	1773	107~288		85	

a) Sample (food with Thickener added) adjustment

Samples were adjusted according to previous reports<sup>3,4,5,6</sup>. Each of the three foods was prepared as follows.

- 1) The thickness of the food product was measured without any change (homogenized with a mixer) after 30seconds, 5minutes.
- 2) The thickness of the food product was measured with change (homogenized with a mixer) after 30seconds, 5minutes.
- 3) The thickness was measured on the food product with modification (homogenized with a mixer) after adding 1gramof Thickener (A, B, C, D, E, F, G, and H) to the food (100g) after 30seconds, 5minutes.
- 4) The thickness was measured on the food product with modification (homogenized with a mixer) after adding 2 grams of Thickener (A, B, C, D, E, F, G, and H) to the food (100g) after 30seconds, 5minutes.
- 5) The thickness was measured on the food product with modification (homogenized with a mixer) after adding 3 grams of Thickener (A, B, C, D, E, F, G, and H) to the food (100g) after 30seconds, 5minutes.

b) Viscosity measurement method

Using the Line Spread Test Start Kit (LST) manufactured by SARAYA, the viscosity of each food was measured. The measurement procedure is as follows. The line spread test (LST) was performed in a room with a room temperature of 24 degrees. Thickness measurements by line spread test (LST) were performed three times using the same sample. Data was obtained by averaging the viscosity results of three repeated measurements. The measurement method was according to Line Spread Test Start Kit (LST) manufactured by SARAYA.

1. Place the sheet on a level surface. Place a ring with an inner diameter of 30mm in the center of the concentric circles.
2. Add the liquid to be measured to the total thickness of thering (20ml) and let stand for 30 seconds.
3. Lift the ring vertically, and after 30 seconds, measure the spread distance of the solution<sup>7</sup>. Six points on the outermost circumference of the sample spread concentrically were measured, and the average value was calculated as the result of LST values.



4. After standing for 5 minutes, the spread of the samples is measured again at 6 points, and the average value is recorded as the LST value.

c) *Criteria for viscosity*

There are three levels of classification by LST value<sup>6)</sup>. The first stage is mildly thick with a viscosity that falls within the 43mm to 36mm (50-150 mPa · s). As for the properties, when the spoon is tilted, it flows down quickly<sup>4)</sup>. The second stage is moderately thick with a viscosity that falls within the 36mm to 32mm (150-300 mPa · s). As for the properties, when you tilt the spoon, it flows to the surface<sup>4)</sup>. The third stage is highly thick with a viscosity that falls within the 32mm to 30mm (300-500 mPa · s). Even if the spoon is tilted, the shape is maintained to some extent, and does not flow easily<sup>6)</sup>.

d) *Statistical processing*

This study was statistically processed using statistical processing software (Excel 2010: SSRI Co., Ltd). The data to be compared were first tested for normal distribution by F-test. For comparisons between correlated data, the paired Student-t test was used for normally distributed data. Wilcoxon test was used for non-normally distributed data<sup>7)</sup>.

gratin and the eight types of commercially available LST values. It was found that after homogenizing the sample using a mixer, the mixture food became thin, increasing the risk of aspiration when swallowing. Therefore, it is necessary to increase the viscosity of the mixture food with a commercially available thickener. Addition of 1 g of all eight types of thickeners resulted in thicker LST values after 30 seconds. However, after 5 minutes, it became intermediate thickness in thickener C. With the addition of 2 g and 3 g, the value for all thickeners was 30 mm or less, and the thickness was thicker than thicker. In this study, the appropriate value was set to 23-32 mm (previous research; according to Mayumi Hirabayashi), so it is possible to obtain the proper value by adding 1 g of thickeners A and G and 1 g or 2 g of thickener B,C,D,E,F, and H have understood. When 1 g was added and after standing for 30 seconds, the viscosity increased in the order of Thickeners D, G, and A. When 2g was added and after standing for 30 seconds, the density increased in the order of Thickeners G, A, and H. Thickeners E, H, and G had high density when 3 g was added and after standing for 30 seconds.

### III. RESULTS

Table 3-1 shows the LST value results of the commercially available UDF (tongue crushable) shrimp

Table 3 Viscosity measurement results of eight types of thickeners for Shrimp gratin

	After 30 seconds		After 5 minutes		After 30 seconds		After 5 minutes		After 30 seconds		After 5 minutes	
Non mizer processing (NMP)	19.6	± 1.4	21.8	± 2.1								
Mixer processin (MP)	39.8	± 2.1	43.6	± 2.2								
MP with Thickener A	24.6	± 1.8	26.6	± 1.8	21.7	± 5.7	22.4	± 6	21.6	± 4.5	21.8	± 4.7
MP with Thickener B	26.9	± 5.3	28.5	± 5.2	23.8	± 3.8	24.7	± 3.8	22	± 4.8	22.3	± 5
MP with Thickener C	30.5	± 2	32.3	± 2	25.1	± 3.8	26	± 3.9	21.7	± 4	22.1	± 4.3
MP with Thickener D	Add 24.3	± 4.2	25.8	± 4.5	Add 23.6	± 2.6	24.3	± 2.8	Add 21.7	± 4.9	22.3	± 5.2
MP with Thickener E	1g 25.6	± 3	27.3	± 3	2g 23.4	± 1.9	24.1	± 2.2	3g 19.9	± 2.2	20.5	± 2.5
MP with Thickener F	30.3	± 1.7	31.9	± 1.6	26.4	± 2.4	28.2	± 3.4	21.7	± 1.2	22.2	± 1.5
MP with Thickener G	24.5	± 3	25.8	± 3.4	21.4	± 3.3	22.1	± 3.8	21.5	± 2.1	21.3	± 2.2
MP with Thickener H	25.6	± 1.9	27.3	± 1.8	22.5	± 6.7	23.3	± 7.2	20.6	± 3.3	21.6	± 4.3

Table 3-2 shows the results of multiple comparisons of LST values after 5 minutes of stirring after adding 1 g of 8 types of thickeners and after 30 seconds of LST standing according to the Scheffe method. Thickener A and Thickeners C and F, Thickener

C and Thickeners D, E, G and H, Thickener D and Thickener F, Thickener E and Thickener F, thickener A statistically significant difference was shown between agent F and Thickeners G and H.

Table 3 – 3 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 2g of 8 types of thickeners by Scheffe's method (after atanding still for 30 seconds)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	0.9679	0.6211	0.9880	0.9940	0.1198	1.0000	1.0000
Thickener B	0.9679	-----	0.9995	1.0000	1.0000	0.8813	0.9294	0.9990
Thickener C	0.6211	0.9995	-----	0.9973	0.9940	0.9986	0.4977	0.8949
Thickener D	0.9880	1.0000	0.9973	-----	1.0000	0.7980	0.9679	0.9998
Thickener E	0.9940	1.0000	0.9940	1.0000	-----	0.7368	0.9817	1.0000
Thickener F	0.1198	0.8813	0.9986	0.7980	0.7368	-----	0.0734	0.3556
Thickener G	1.0000	0.9294	0.4977	0.9679	0.9817	0.0734	-----	0.9998
Thickener H	1.0000	0.9990	0.8949	0.9998	1.0000	0.3556	0.9998	-----

Table 3-2 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 1g of 8 types of thickeners by Scheffe's method (after atanding still for 30 seconds)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	0.7789	0.0001	1.0000	0.9992	0.0002	1.0000	0.9992
Thickener B	0.7789	-----	0.1315	0.6064	0.9945	0.2040	0.7101	0.9945
Thickener C	0.0001	0.1315	-----	0.0000	0.0037	1.0000	0.0000	0.0037
Thickener D	1.0000	0.6064	0.0000	-----	0.9926	0.0000	1.0000	0.9926
Thickener E	0.9992	0.9945	0.0037	0.9926	-----	0.0077	0.9977	1.0000
Thickener F	0.0002	0.2040	1.0000	0.0000	0.0077	-----	0.0001	0.0077
Thickener G	1.0000	0.7101	0.0000	1.0000	0.9977	0.0001	-----	0.9977
Thickener H	0.9992	0.9945	0.0037	0.9926	1.0000	0.0077	0.9977	-----

Table 3-3 shows the results of multiple comparisons of LST values after 5 minutes of stirring, after 2 g of 8 types of thickeners were added, and after 30 seconds of LST standing according to the Scheffe method. There was no significant difference between all groups.

Table 3-4 shows the results of multiple comparisons of LST values after 5 minutes of stirring after adding 3 g of 8 types of thickeners according to the Scheffe method and after 30 seconds of LST standing. There was no significant difference between all groups.

Table 3-4 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 3g of 8 types of thickeners by Scheffe's method (after atanding still for 30 seconds)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	1.0000	1.0000	1.0000	0.9864	1.0000	1.0000	0.9998
Thickener B	1.0000	-----	1.0000	1.0000	0.9341	1.0000	1.0000	0.9953
Thickener C	1.0000	1.0000	-----	1.0000	0.9736	1.0000	1.0000	0.9991
Thickener D	1.0000	1.0000	1.0000	-----	0.9736	1.0000	1.0000	0.9991
Thickener E	0.9864	0.9341	0.9736	0.9736	-----	0.9786	0.9894	1.0000
Thickener F	1.0000	1.0000	1.0000	1.0000	0.9786	-----	1.0000	0.9994
Thickener G	1.0000	1.0000	1.0000	1.0000	0.9894	1.0000	-----	0.9998
Thickener H	0.9998	0.9953	0.9991	0.9991	1.0000	0.9994	0.9998	-----

Table 3-5 shows the results of multiple comparisons of LST values after 5 minutes of stirring after adding 1 g of 8 types of thickeners and after 5 minutes of LST standing according to the Scheffe method. Thickener A and Thickeners C and F, Thickener

C and Thickeners D, E, G, H, Thickener D and Thickener F, Thickener E and Thickener F, thickener A statistically significant difference was shown between agent F and Thickeners G and H and Thickener G.

Table 3-5 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 1g of 8 types of thickeners by Scheffe's method (after atanding still for 5 minutes)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	0.9246	0.0004	0.9999	1.0000	0.0013	0.9999	1.0000
Thickener B	0.9246	-----	0.1260	0.6002	0.9971	0.2350	0.6002	0.9971
Thickener C	0.0004	0.1260	-----	0.0000	0.0049	1.0000	0.0000	0.0049
Thickener D	0.9999	0.6002	0.0000	-----	0.9865	0.0001	1.0000	0.9865
Thickener E	1.0000	0.9971	0.0049	0.9865	-----	0.0137	0.9865	1.0000
Thickener F	0.0013	0.2350	1.0000	0.0001	0.0137	-----	0.0001	0.0137
Thickener G	0.9999	0.6002	0.0000	1.0000	0.9865	0.0001	-----	0.9865
Thickener H	1.0000	0.9971	0.0049	0.9865	1.0000	0.0137	0.9865	-----

Table 3-6 shows the results of multiple comparisons of LST after 5 minutes of stirring after adding 2 g of 8 types of thickeners according to the Scheffe method and after 5 minutes of LST standing. A

statistically significant difference was shown between Thickener A and Thickener F and between Thickener F and G.

Table 3-6 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 2g of 8 types of thickeners by Scheffe's method (after atanding still for 5 minutes)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	0.9698	0.6283	0.9901	0.9960	0.0362	1.0000	1.0000
Thickener B	0.9698	-----	0.9995	1.0000	1.0000	0.6504	0.9366	0.9995
Thickener C	0.6283	0.9995	-----	0.9969	0.9920	0.9745	0.5151	0.9179
Thickener D	0.9901	1.0000	0.9969	-----	1.0000	0.5151	0.9745	1.0000
Thickener E	0.9960	1.0000	0.9920	1.0000	-----	0.4256	0.9878	1.0000
Thickener F	0.0362	0.6504	0.9745	0.5151	0.4256	-----	0.0208	0.1732
Thickener G	1.0000	0.9366	0.5151	0.9745	0.9878	0.0208	-----	0.9997
Thickener H	1.0000	0.9995	0.9179	1.0000	1.0000	0.1732	0.9997	-----

Table 3-7 shows the results of multiple comparisons of LST values after 5 minutes of stirring after adding 3 g of 8 types of thickeners and after 5 minutes of LST standing according to the Scheffe method. There was no significant difference between all groups.

#### IV. DISCUSSION

Among the universal design food (UDF) tongue, crushable foods used this time, shrimp gratin had a nutritional value of 76 kcal of energy, 6 g of protein, 5 g of fat, and 8 g of sugar. The results of the line spread test (LST) performed on this food homogenized with a mixer were  $39.3 \pm 2.1$  mm after standing for 30 seconds, and a thin thickness of  $43.6 \pm 2.2$  after

standing for 5 minutes. It was shown that adding a thickening agent was necessary for safe swallowing. As a result of adding eight types of thickeners to this food, 1g of any thickener per 100g of food resulted in a viscosity of 30mm-33mm, which was determined as an appropriate value. Thickener G had the highest thickening effect, reaching  $25.6 \pm 3.4$  mm after standing for 5 minutes. The main component of this thickener G was xanthan gum, and it also contained polysaccharide thickener and sodium chloride. Thickener G had the highest thickening effect, reaching  $25.6 \pm 3.4$  mm after standing for 5 minutes. The main component of this Thickener G was xanthan gum, and it also contained polysaccharide thickener and sodium chloride.

Table 3 – 7 Multiple comparison (upper probability) of LST values after 5 minutes of stirring after adding 3g of 8 types of thickeners by Scheffe's method (after standing still for 5 minutes)

	Thickener A	Thickener B	Thickener C	Thickener D	Thickener E	Thickener F	Thickener G	Thickener H
Thickener A	-----	1.0000	1.0000	1.0000	0.9991	1.0000	1.0000	1.0000
Thickener B	1.0000	-----	1.0000	1.0000	0.9859	1.0000	1.0000	1.0000
Thickener C	1.0000	1.0000	-----	1.0000	0.9946	1.0000	1.0000	1.0000
Thickener D	1.0000	1.0000	1.0000	-----	0.9887	1.0000	1.0000	1.0000
Thickener E	0.9991	0.9859	0.9946	0.9887	-----	0.9911	0.9993	0.9997
Thickener F	1.0000	1.0000	1.0000	1.0000	0.9911	-----	1.0000	1.0000
Thickener G	1.0000	1.0000	1.0000	1.0000	0.9993	1.0000	-----	1.0000
Thickener H	1.0000	1.0000	1.0000	1.0000	0.9997	1.0000	1.0000	-----

In the case of UDF shrimp gratin, only when Thickener C was added, the LST value after standing for 5 minutes became moderately thick. This result is considered to be influenced by xanthan gum, calcium lactate, and trisodium citrate contained in the Thickener C.

2007, Shiozawa et al. reported that thickeners made food easier to swallow<sup>9</sup>. In 2005, Kanaoka et al. also reported the effectiveness of thickening agents in preventing gastroesophageal reflux in enteral feeding<sup>10</sup>.

Studies on the palatability of thickeners have reported that the production of food pastes does not look good and gives poor taste and texture.

Studies on the palatability of thickeners have reported that the production of food pastes not only adversely affects their appearance, but also their palatability and texture<sup>11</sup>.

However, in this study, it was shown that adding a small amount of thickening agent can achieve the desired thickness in the case of foods containing a large amount of carbohydrates. The result is beneficial in terms of taste and cost.

Since around 2010, many research reports on adding thickeners to food have been published. The content was helpful in unifying food properties in various facilities<sup>12,13,14</sup>.

Many studies have also been reported on differences in viscosity due to differences in the main components of thickeners (xanthan gum, guar gum, starch, etc.)<sup>12,15</sup>.

In addition, calcium, phosphoric acid, whey protein, etc., have a synergistic effect and help increase viscosity<sup>16</sup>.

However, it has been reported that the use of thickeners in water may have a negative effect on the efficacy of drugs when administered to patients with swallowing dysfunction, so that caution may be necessary<sup>17,18</sup>. Using a large amount of thickener, the viscosity will increase and it can expect a good effect on swallowing. But it cannot be said that it is very food for palatability and digestion and absorption. Therefore, in the future, we believe that further research on safety, palatability, cost, etc., in swallowing is necessary.

Using too much thickener can affect digestion and palatability. Regarding the prevention of aspiration pneumonia due to gastroesophageal reflux disease and the prevention of digestive absorption inhibition, it is necessary to continue research, including the type and amount of thickener used, compatibility with food, etc.

In the future, we believe it will be possible to provide safer nursing care food by investigating the combination and additional amount of multiple target foods and thickeners. In a super-aging society, it is essential to quickly to cook safe and stable viscosity-adjusted foods at home easily. I would like to continue research and report the results so that ordinary households can eat a safer and more stable meal.

## V. CONCLUSIONS

As the population ages, the number of older people with impaired eating and swallowing functions is increasing. Around the world, the number of patients who develop pneumonia due to aspiration and decreased immunity due to weakened swallowing reflexes due to aging and brain disease is increasing.

Thickeners are being used increasingly to make food safer for people with dysphagia. This Thickener must have low viscosity, no syneresis, no change over time, no loss of palatability, and low reactivity with saliva.

Shrimp gratin, a universal design food (UDF) on the market that can be crushed with the tongue, has a nutritional value of 76 kcal of energy, 6 g of protein, 5 g of fat, and 8 g of sugar. This food had a stable viscosity with 1 g thickening agent containing various xanthan gums as the main component. In addition, xanthan gum as the main component and thickeners containing thickening polysaccharides and sodium chloride showed the most stable viscosity.

Using a large amount of thickener, the viscosity will increase and it can expect a good effect on swallowing. But it cannot be said that it is very food for palatability and digestion and absorption. Therefore, in the future, we believe that further research on safety, palatability, cost, etc., in swallowing is necessary.

## ACKNOWLEDGEMENTS

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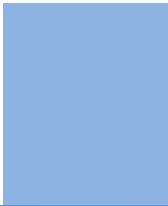
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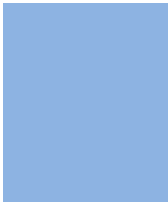
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Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.





## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

### PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

### TIPS FOR WRITING A GOOD QUALITY MEDICAL RESEARCH PAPER

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of medical research then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.



**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.



### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

#### **Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

#### **Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

#### **Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

#### **Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

#### **What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.





**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

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*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

*Written material:* You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.



CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)  
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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save our planet

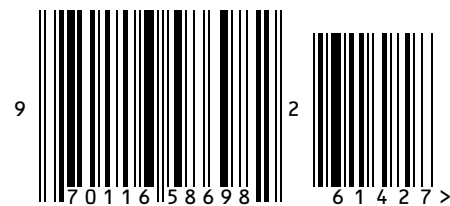


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