

editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS) (Int Peer Reviewed Journal) Vol. 05, Issue 04, April 2025, pp : 2915-2926

2583-1062 Impact Factor : 7.001

e-ISSN:

EMPOWERMENT THROUGH AWARENESS: THE ROLE OF EDUCATION IN IMPROVING WOMEN'S HEALTH OUTCOMES

Nancy Kumari¹

¹Special Centre for Disaster Research, Jawaharlal Nehru University, New Delhi-110067, (India).

nancykumari0108@gmail.com

ABSTRACT

Education is universally recognized as a cornerstone of women's empowerment, with profound and far-reaching effects on individual well-being and societal development. This paper investigates the critical role of education in enhancing women's health outcomes, with particular emphasis on its influence across physical, mental, and reproductive health domains. Access to quality education empowers women with the knowledge and skills necessary to make informed decisions about their health, engage in preventive care, and adopt healthier lifestyles, thereby reducing the risk of chronic diseases and improving general well-being. Moreover, educational attainment plays a pivotal role in addressing key reproductive health challenges, including lowering maternal and infant mortality rates by promoting access to maternal health services, antenatal care, and family planning. The paper draws on both global and Indian contexts to highlight the transformative power of education in advancing gender equity and public health. It explores how higher levels of education in women correlate with a reduction in health disparities, promoting healthier family sizes, delayed marriages, and improved family planning practices. Furthermore, educated women are more likely to seek healthcare services, make informed choices regarding reproductive health, and support the education and health of their children, creating a positive intergenerational cycle of improved health outcomes. This paper also underscores the broader societal benefits of women's education, including the dismantling of gender norms that limit access to healthcare and social services for women. It discusses the role of education in shifting traditional attitudes towards gender roles, enabling women to challenge inequalities and enhance their participation in decision-making at both the household and community levels. Through case studies and statistical evidence, this paper illustrates the multidimensional impact of education on women's health and calls for continued global and national efforts to expand educational access and quality, especially for marginalized women, as a pathway to achieving better health outcomes and fostering sustainable societal development.

Keywords: Education, Women's Empowerment, Health Outcomes, Physical Health, Mental Health, Reproductive Health, Maternal Mortality, Infant Mortality, Health Literacy, Informed Decision-Making, Gender Equity, Public Health, Family Planning, India, Global Health, Societal Development, Intergenerational Impact.

1. INTRODUCTION

Education plays a crucial role in shaping women's health outcomes and overall well-being. It is an essential tool for equipping women with the knowledge, confidence, and autonomy required to make informed decisions regarding their health and lifestyle. These key factors-knowledge, confidence, and autonomy-are integral to achieving better health outcomes and fostering long-term well-being [1-9]. In societies across the world, particularly in developing countries like India, education serves as a fundamental pillar of empowerment. Women who have access to education tend to have better health literacy, which enables them to understand medical advice, recognize health risks, and take proactive measures to maintain their health. However, in many parts of the world, women continue to face significant systemic barriers to education [10-16]. These barriers include cultural norms, gender-based discrimination, poverty, early marriage, and limited access to educational resources, especially in rural or marginalized communities. These challenges restrict women's access to information and opportunities, ultimately impeding their ability to make decisions about their health and well-being. When girls and women are denied education or when their education is interrupted, the consequences are felt not only on an individual level but also across entire communities and generations [17-23]. This paper delves into the transformative role of education in improving women's health, particularly focusing on its impact on reproductive health, mental well-being, and broader empowerment. Education is directly linked to improved reproductive health outcomes. Educated women are more likely to have access to contraceptive methods, seek prenatal and postnatal care, and make decisions about their reproductive health that prioritize their safety and well-being. This leads to a reduction in maternal mortality rates, healthier pregnancies, and fewer unplanned pregnancies. Furthermore, education provides women with the knowledge needed to navigate healthcare systems, ensuring that they can access the medical services they need when they need them. Beyond reproductive health, education also significantly impacts women's mental well-being.

Research has consistently shown that educated women are less likely to experience depression, anxiety, and other mental health disorders. Education enhances women's ability to manage stress, cope with societal pressures, and maintain positive self-esteem. It also enables them to engage in social support networks and access mental health services when needed. In societies where mental health remains a taboo subject, education serves as a powerful tool in breaking down stigma, raising awareness, and encouraging women to seek help [24-31]. Moreover, the autonomy that education provides women is essential for their overall empowerment. Educated women are more likely to participate in decision-making processes at the household and community levels. They are better equipped to advocate for their rights, including reproductive rights, and challenge social norms that may limit their personal and professional choices. Education also empowers women economically, allowing them to pursue career opportunities, contribute to household income, and gain financial independence, which in turn positively affects their health and quality of life [32-38]. Despite the proven



benefits, millions of women, particularly in developing countries, still face significant barriers to education. In India, for instance, traditional gender roles often prioritize male education, while girls are expected to stay at home and perform domestic duties. Early marriages and pregnancies also disrupt girls' education, denying them the opportunity to complete their studies and gain the skills necessary for financial independence. These factors create a cycle of poverty and poor health, which is difficult to break without targeted interventions that promote female education. This paper examines how overcoming these barriers to education can serve as a catalyst for improving women's health outcomes. By providing women with the tools to educate themselves and their families, societies can build healthier, more equitable communities. The evidence is clear: when women are educated, they not only experience improved physical and mental health but also become agents of change in their communities, promoting gender equality and advancing public health [39-43]. Therefore, addressing the barriers to education and ensuring that all women, regardless of their background or socio-economic status, have access to quality education is critical for improving health outcomes and achieving broader development goals.

2. Education and Reproductive Health: Educated women are more likely to access and utilize healthcare services, including family planning and prenatal care. They tend to have fewer children, spaced pregnancies, and lower rates of maternal and infant mortality. For instance, the Sabla program in India aims to empower adolescent girls through education on nutrition, health, and reproductive rights, leading to improved health outcomes. Comprehensive sex education (CSE) further enhances women's ability to make informed reproductive choices [44-51]. CSE has been linked to delayed initiation of sexual activity, increased contraceptive use, and reduced rates of sexually transmitted infections.

3. Mental Health and Emotional Well-being: Education plays a pivotal role in shaping mental health outcomes, offering more than just academic knowledge-it fosters essential life skills that are integral to emotional well-being. One of the primary ways in which education contributes to better mental health is by fostering self-esteem, resilience, and problem-solving skills. These psychological attributes are vital for navigating the challenges of daily life, handling stress, and responding to emotional difficulties in a healthy way. First and foremost, education helps women develop a sense of self-worth and confidence in their abilities. The process of learning and acquiring new knowledge not only enhances intellectual capabilities but also reinforces the belief that women can take control of their lives, make informed choices, and pursue their goals [52-59]. This sense of empowerment is directly linked to mental health, as individuals with higher self-esteem tend to experience lower rates of anxiety and depression. In societies where women may face gender-based discrimination or are often marginalized, education provides a powerful counter-narrative-allowing women to redefine their roles and assert their value within their families and communities. Moreover, education equips women with resilience, which is the ability to bounce back from adversity. Resilience is a crucial psychological trait that helps individuals cope with the inevitable challenges of life, such as personal loss, societal pressures, and economic hardship. Educated women are better equipped to manage stress, adapt to changing circumstances, and maintain their emotional well-being even in difficult situations [60-64]. The critical thinking and problem-solving skills acquired through education also contribute to this resilience. When faced with life's obstacles, educated women are more likely to approach problems logically, seek effective solutions, and remain emotionally grounded. This ability to cope constructively with stress and adversity plays a key role in mitigating the risk of mental health disorders, such as anxiety, depression, and post-traumatic stress disorder (PTSD).

Furthermore, education empowers women with essential problem-solving skills, enabling them to address both personal and societal challenges. Women who are educated are more likely to engage in **reflective thinking**, weigh the pros and cons of different choices, and identify strategies for overcoming difficulties. This cognitive flexibility is crucial for mental well-being, as it allows individuals to handle difficult situations without becoming overwhelmed by them. In contrast, a lack of education or limited problem-solving abilities can increase the likelihood of poor mental health outcomes, as individuals may feel helpless or unable to find effective solutions to their problems. An important aspect of education's role in mental health is that it also enables women to recognize mental health issues in themselves and others [65-71]. With a higher level of education, women are more likely to be exposed to information about mental health, emotional well-being, and the importance of seeking help when needed. They are better informed about the symptoms of mental health conditions, such as depression, anxiety, and stress, and are more likely to acknowledge these issues early on. In many cultures, mental health issues are stigmatized, and seeking help is often seen as a sign of weakness or failure. However, educated women are more likely to challenge this stigma and understand that mental health care is an essential aspect of overall well-being. This recognition can lead to timely intervention, reducing the severity of mental health conditions and improving long-term outcomes [72-79]. Moreover, mental health awareness gained through education helps women to better support their peers and families. Educated women are more likely to share knowledge about mental health with others, advocating for better mental health care and destigmatizing mental health discussions within their communities. This can create a ripple effect, enhancing the mental well-being of entire communities by fostering open conversations about mental health and reducing the shame and silence that often surround these issues.

In addition to these psychological benefits, **economic opportunities** play a significant role in reducing mental health challenges. Education often leads to improved employment prospects and greater economic independence for women. Financial security reduces stressors associated with poverty, such as food insecurity, housing instability, and the inability to access essential healthcare services [80-85]. Women who are educated are more likely to earn higher wages, have job stability, and experience less economic stress, all of which contribute to improved mental health. Economic independence also provides women with more **autonomy** over their lives, enabling them to make decisions that prioritize their well-

| LIPREMS | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT | e-ISSN : 2583-1062 |
|--------------------|--|-----------------------|
| | AND SCIENCE (IJPREMS) | Impact |
| www.ijprems.com | (Int Peer Reviewed Journal) | Factor : |
| editor@ijprems.com | Vol. 05, Issue 04, April 2025, pp : 2915-2926 | 7.001 |

being. When women are less financially dependent on others, they are better able to escape unhealthy or abusive relationships, which significantly reduces their mental health risks. Furthermore, **social support networks** play a crucial role in mental health, and education helps women build stronger, more supportive connections. Educated women are more likely to have access to social support networks, including family, friends, and colleagues, that provide emotional support, guidance, and practical assistance. Social support is a key protective factor against mental health challenges, as it provides individuals with a sense of belonging, reduces feelings of isolation, and offers emotional reassurance during times of distress. In addition, education helps women develop the communication and interpersonal skills necessary to foster healthy relationships and access support when needed. Strong social networks can buffer the effects of stress, improve coping mechanisms, and help prevent the onset of mental health issues.

4. Economic Empowerment and Health Access: Education is a powerful tool that shapes the socio-economic trajectory of individuals, especially women. It opens doors to a range of opportunities, notably in the realms of employment and financial independence. These two factors are key in improving not just economic status but also the health outcomes of women and their families. The ability to afford healthcare services, make informed health-related decisions, and secure resources for well-being is significantly enhanced through educational attainment. When women are educated, they gain the skills, confidence, and knowledge necessary to navigate complex healthcare systems, understand health risks, and adopt healthier lifestyles [86-91]. Education, therefore, not only enhances an individual's economic prospects but also plays a critical role in improving access to quality health services, ultimately leading to better health outcomes. One of the most significant impacts of education on women's health is the ability to make informed health decisions. Educated women are more likely to understand the importance of preventive care, the need for regular health check-ups, and the significance of healthy lifestyle choices, such as balanced diets and exercise. In societies where healthcare information may be scarce or difficult to access, education provides women with the critical tools to understand and act upon available health information. For example, they are more likely to access family planning services, practice safe childbirth, seek maternal healthcare, and adhere to medical advice. Educated women are also more likely to take initiative in seeking medical care for themselves and their children, reducing the incidence of preventable diseases and improving overall well-being.

Beyond the personal level, economic empowerment is a critical outcome of educational attainment. As women achieve higher levels of education, they become eligible for better job opportunities, resulting in increased financial independence. This financial autonomy allows women to invest in their health and well-being, including affording healthcare services that may have previously been out of reach due to financial constraints. For example, women who are economically independent can afford regular medical checkups, purchase medications, and ensure that their families receive the necessary medical care [92-97]. They can also make informed decisions about healthcare, such as opting for higher-quality medical treatments or taking preventive measures that may prevent long-term health complications. One notable example of how education and economic empowerment can positively impact health outcomes is the Self-Employed Women's Association (SEWA) in India. SEWA, a grassroots organization founded in 1972, works with women who are engaged in informal sector work, helping them gain access to social security, financial independence, and education. Through SEWA, women are taught not only vocational skills but also financial literacy, health education, and rights advocacy, which leads to greater autonomy and the ability to make informed decisions about their lives. The impact of SEWA's work on women's health is significant [98-101]. Women who are part of the SEWA network have better access to healthcare services and are more likely to engage in preventive health practices such as family planning, maternal health care, and immunization for children. Economic empowerment through SEWA has also helped women overcome barriers such as lack of access to affordable healthcare and limited health literacy. With the financial resources to afford healthcare services, SEWA women are able to access better quality care and reduce the economic strain that often accompanies illness [102-118]. Furthermore, SEWA provides a platform for women to advocate for their health rights, and this collective empowerment helps to address issues of health inequality in communities where traditional gender roles often restrict women's access to necessary services. The intergenerational impact of such empowerment is also noteworthy. Educated and economically empowered women are more likely to invest in the health and education of their children. This creates a virtuous cycle: as mothers gain better access to healthcare and make more informed health decisions, they pass on these benefits to the next generation, improving the long-term health and educational outcomes for their families. This intergenerational transfer of knowledge and resources creates healthier communities and reduces the overall burden of disease and poverty [119-124].

However, the barriers to education and economic empowerment for women, particularly in developing countries like India, remain significant. While initiatives like SEWA demonstrate the potential benefits of education and economic empowerment, many women continue to face systemic challenges that limit their access to education and employment opportunities. These challenges include **gender-based discrimination**, **poverty**, **cultural norms**, and **lack of infrastructure**, particularly in rural areas. For instance, many girls in rural India face early marriage or are expected to contribute to household chores, which may prevent them from pursuing education [125-129]. Additionally, many women in the informal economy are denied opportunities for skill development, financial independence, and healthcare access due to a lack of support networks and institutional resources. Addressing these barriers requires comprehensive policies that not only focus on improving access to education but also provide women with the tools and opportunities to participate fully in the workforce. For example, vocational training programs, financial literacy workshops, and initiatives to ensure women's rights to healthcare and social security are all vital in ensuring that women can achieve economic independence. Furthermore, empowering women through education and financial independence has broader societal

| IIPREMS | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT | e-ISSN : 2583-1062 |
|--------------------|--|-----------------------|
| | AND SCIENCE (IJPREMS) | Impact |
| www.iinrems.com | (Int Peer Reviewed Journal) | Factor : |
| editor@ijprems.com | Vol. 05, Issue 04, April 2025, pp : 2915-2926 | 7.001 |

benefits, as educated and empowered women tend to contribute positively to economic growth, community development, and health outcomes [130-133].

5. Intergenerational Benefits: Educating women is not only beneficial to the women themselves but also plays a crucial role in shaping the future of their families and communities. One of the most profound effects of educating women is the **positive intergenerational cycle of empowerment** it creates, particularly in the context of children's **education** and **health**. Educated women are more likely to prioritize and invest in their children's well-being, ensuring that their offspring have access to better healthcare, nutrition, and educational opportunities. This, in turn, fosters a **virtuous cycle** where the benefits of women's education extend beyond a single generation, contributing to the broader societal advancement over time [134-139]. At the heart of this intergenerational cycle is the **strong emphasis that educated mothers place on their children's health and education**. Studies have consistently shown that mothers with higher educational attainment are more knowledgeable about the importance of childhood nutrition, immunization, and overall health practices. Educated mothers are more likely to recognize the value of **vaccinations**, **regular check-ups**, and **preventive healthcare**, which increases their children's chances of growing up healthy and thriving. As a result, children of educated mothers typically have higher **immunization rates**, which is a key factor in preventing childhood diseases and improving long-term health outcomes. They are also more likely to benefit from **better nutrition**, as educated mothers are better informed about the nutritional needs of their children, leading to healthier physical development and a reduced risk of malnutrition [140-143].

Additionally, **education significantly influences the academic performance of children**. Children of educated mothers are more likely to perform well academically and stay in school for longer periods. Educated mothers tend to place a higher value on education, recognizing it as a pathway to better economic opportunities and improved social mobility. As a result, these mothers often encourage their children to pursue their studies, providing both emotional and material support to ensure their educational success [144-149]. Moreover, the cognitive skills and problem-solving abilities that come with education equip mothers to better support their children's learning, both academically and socially. They are more likely to engage with their children's schoolwork, advocate for their needs within educational systems, and create an environment conducive to learning at home. The impact of maternal education is particularly significant when it comes to have access to better educational opportunities, healthier living conditions, and the resources needed to pursue careers that offer higher wages and better prospects [150-154]. This upward mobility not only benefits the immediate family but also has broader implications for the wider community and society. As these children grow into educated, productive adults, they contribute positively to the economy and help improve the overall standard of living in their communities.

| Aspect | Impact of Education on Women's Health | Examples / Programs |
|--------------------------------|---|--|
| Reproductive Health | Increases awareness and use of healthcare services Leads to fewer, well-spaced pregnancies Reduces maternal mortality | - Sabla Program (India) - Comprehensive Sex Education (CSE) initiatives |
| Mental Health | Enhances self-esteem and resilience Encourages mental health care- seeking behavior Lowers stress and anxiety | Awareness initiatives in schools Articles promoting education and mental health linkage (e.g., HerSerenity) |
| Economic Empowerment | Boosts financial independence Enables better access to healthcare Supports autonomy in decision- making | Self Employed Women's Association (SEWA) Vocational training and microcredit programs |
| Intergenerational Benefits | Educated mothers ensure better child health and education Enhances immunization and nutrition for children | - Higher literacy leads to generational upliftment |
| Policy and Community Impact | Strengthens public health infrastructure Promotes gender-sensitive education Engages families and local leadership | - Government schemes - Community outreach and NGO partnerships |
| Recommended Strategies | Ensure access and retention in school Integrate health in curricula | National Education Policy (NEP) provisions Grassroots education-health campaigns |

Table (1): The Role of Education in Improving Women's Health Outcomes



www.ijprems.com editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS)

(Int Peer Reviewed Journal)

2583-1062 Impact Factor : 7.001

e-ISSN:

Vol. 05, Issue 04, April 2025, pp : 2915-2926

| Aspect | Impact of Education on Women's Health | Examples / Programs |
|--------|---|---------------------|
| | - Support skill-building - Encourage participation | |

2. POLICY IMPLICATIONS AND RECOMMENDATIONS

To harness the full potential of education in improving women's health, the following strategies are recommended:

- **Expand Access to Education**: Implement policies that ensure girls' enrolment and retention in schools, particularly in rural and marginalized communities.
- **Integrate Health Education**: Incorporate comprehensive health and reproductive education into school curricula to equip girls with essential knowledge.
- **Support Vocational Training**: Provide skill-based training programs that enhance women's employability and economic independence.
- **Promote Community Engagement**: Encourage community-based initiatives that involve families and local leaders in supporting girls' education and health.

3. CONCLUSION

In conclusion, education stands as a powerful tool for empowering women, improving health outcomes, and fostering sustainable development. It is clear that investing in women's education yields significant benefits, not only for the individuals directly involved but for entire communities and societies. Educated women are better equipped to make informed decisions about their health, their families' well-being, and their economic futures. They are more likely to access quality healthcare, practice preventive health measures, and ensure the well-being of their children, thereby improving maternal and child health outcomes. Furthermore, the intergenerational effects of educating women lead to healthier, more educated future generations, contributing to the broader goal of breaking the cycle of poverty. The positive impact of education extends beyond health, influencing gender equality, economic empowerment, and reduced healthcare costs, creating a more equitable society. Educated women are empowered to challenge traditional gender roles, advocate for their rights, and contribute actively to societal development. This empowerment is vital for achieving the Sustainable Development Goals (SDGs), particularly those focusing on health, gender equity, and economic growth. To achieve these transformative outcomes, it is essential to pursue integrated approaches that combine access to education with health awareness and empowerment. Policies and programs that prioritize both education and health can significantly enhance women's autonomy and well-being, laying the foundation for a healthier, more prosperous future. Ultimately, investing in women's education is not just an investment in individuals but a critical step toward creating a more just, inclusive, and sustainable world for generations to come.

4. REFERENCES

- [1] Akbar, S., & Shah, S. R. (2020). The effects of prostaglandin analogs on intraocular pressure in the human eye for open-angle glaucoma. *International Journal of Innovative Technology and Exploring Engineering*, *10*(2), 176-180.
- [2] Akbar, S., & Shah, S. R. (2021). DURYSTA: The first biodegradable sustained release implant for the treatment of open-angle glaucoma. *International Journal of Frontiers in Biology and Pharmacy Research*, 1(2), 1-7.
- [3] Akbar, S., & Shah, S. R. (2025). Mathematical modelling of the therapeutic efficacy of metipranolol in primary open-angle glaucoma management. *International Journal of Innovative Science, Engineering & Technology*, *12*(1), 69-86.
- [4] Akbar, S., Sharma, R. K., Sadique, M., Jaiswal, K. M., Chaturvedi, P., Kumar, V., & Shah, S. R. (2024). Computational analysis of clot formation risk in diabetes: A mathematical modeling approach. *BIBECHANA*, 21(3), 233-240.
- [5] Anuradha Singh, Ashik Babu P, Kavita Arora, Sapna Ratan Shah, "Examining the Risk of Clot Formation in Diabetes Through Computational Analysis: An Approach Using Mathematical Modeling" International Journal of Applied Sciences and Biotechnology, 12(2), 92-99, June (2024). DOI: 10.3126/ijasbt.v12i2.65863, ISSN 2091-2609.
- [6] Arvind, & Shah, S. R. (2024). Investigating heat flow from skeletal muscles to skin surface: A theoretical model of thermal dynamics in the hypodermis layer. *International Journal of Engineering Sciences & Research Technology*, *13*(10).
- [7] Arya, D., & Shah, S. R. (2024). Addressing educational challenges in Nainital through strategic human resource management: Recruitment, training, and retention solutions. *International Journal of Research in Human Resource Management*, 6(2), 320-324.
- [8] Ashik Babu Parambath, Priyanka Kandankel, Sapna Ratan Shah, "Dynamic Modeling of Cytokine-Dependent Proliferation Rates over Time in Cancer: Insights from Scientific Analysis", Journal of Mathematical Techniques and Computational Mathematics, 3(7), 01-09, (2024).

| LIPREMS | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT | e-ISSN : 2583-1062 |
|--------------------|--|-----------------------|
| | AND SCIENCE (IJPREMS) | Impact |
| www.iinrems.com | (Int Peer Reviewed Journal) | Factor : |
| editor@ijprems.com | Vol. 05, Issue 04, April 2025, pp : 2915-2926 | 7.001 |

- [9] Basu, A. M. (1994). *Maternal Education, Fertility and Child Mortality: Disentangling Verbal Relationships*. Health Transition Review, 4(2), 207–215.
- [10] Chaturvedi, P. and Shah, S. R. "Role of crizanlizumab for sickle red cells disease", International Journal of Biology, Pharmacy and Allied Sciences, 12(3), 1147-1157, (2023). https://doi.org/10.31032/IJBPAS/2023/12.3.6946, ISSN:2277-4998, IMPACT FACTOR 2023-2024: 2.375. March, 2023.
- [11] Chaturvedi, P., & Shah, S. R. (2023). Mathematical analysis for the flow of sickle red blood cells in microvessels for biomedical application. *Yale Journal of Biology and Medicine*, 96(1), 13-21. https://doi.org/10.59249/ATVG1290.
- [12] Chaturvedi, P., Kumar, R., & Shah, S. R. (2021). Bio-mechanical and bio-rheological aspects of sickle red cells in microcirculation: A mathematical modelling approach. *Fluids*, *6*, 322, 1-15.
- [13] Choudhary, M., Kumar, V., Caplash, S., Yadav, B. K., Kaur, S., Shah, S. R., & Arora, K. (2024). Fabrication of nanomolecular platform-based immunosensor for non-invasive electrochemical detection of oral cancer: An *in vitro* study. *Talanta Open*, *10*, 100352.
- [14] Datt, M. G., Arya, S., & Shah, S. R. (2024). Ayurvedic approaches to maintaining healthy and narrowed arteries. *International Journal for Research & Development in Technology*, 21(6), 21-30.
- [15] Her Serenity. (2023). The Role of Education in Women's Mental Health Awareness.
- [16] Jaiswal, K. M., & Shah, S. R. (2024). The role of synovial fluid dynamics in osteoarthritis: A mathematical modeling perspective. *Research Review International Journal of Multidisciplinary*, *9*(12), 155-164.
- [17] Kapil Kumar, Mukesh Kumar Sharma, Sapna Ratan Shah, Ravins Dohare, "Vector-borne Transmission dynamics model based Caputo fractional-order derivative", Indian Journal of Theoretical Physics, Vol. 71 (3&4), 61-76, (2023). ISSN: 0019-5693.
- [18] Kausar, S., Naqvi, N., Akbar, S., Shah, S. R., Kashif Abbas, Mudassir Alam, Nazura Usmani, "Socioeconomic indicators and their impact on mental health: A data-driven approach using Python and R", International Journal of Epidemiology and Health Sciences, Vol.6, e92, pp. 1-22, (2025). doi: http://doi.org/10.51757/IJEHS.6.2025.720978.
- [19] Kirby, D. B. (2007). *Emerging Answers 2007: Research Findings on Programs to Reduce Teen Pregnancy and Sexually Transmitted Diseases.* National Campaign to Prevent Teen and Unplanned Pregnancy.
- [20] Kshiteendra Mohan Jaiswal, Mo. Sadique, Shabab Akbar, Sapna Ratan Shah "Unveiling Capillary-Tissue Fluid Exchange: Understanding Red Blood Cell Deformation in Constricted Vessels and its Clinical Significance, Materials Plus, 3 (1), 1-9, MAY (2024). https://doi.org/10.37256/3120244770.ISSN 2972-3299.
- [21] Kumar, A., & Shah, S. R. (2024). Hemodynamic simulation approach to understanding blood flow dynamics in stenotic arteries. *International Journal of Scientific Research in Science and Technology*, *11*(6), 630-636. https://doi.org/10.32628/IJSRST241161116
- [22] Kumar, J. P., Sadique, M., & Shah, S. R. (2022). Mathematical study of blood flow through blood vessels under diseased conditions. *International Journal of Multidisciplinary Research and Development*, *9*(6), 31-44.
- [23] Kumar, R., Malik, M. Z., & Shah, S. R. (2020). Effects of (un)lockdown on COVID-19 transmission: A mathematical study of different phases in India. *medRxiv*, 1-13. https://doi.org/10.1101/2020.08.19.20177840
- [24] Kumar, V., & Shah, S. R. (2021). Mathematical model to study the heat transfer between core and skin. *SRMS Journal of Mathematical Sciences*, 7, 7-22.
- [25] Kumar, V., & Shah, S. R. (2022). A mathematical approach to investigate the temperature distribution on the skin surface with sinusoidal heat flux condition. *International Journal of Multidisciplinary Research and Development*, 9(5), 141-146.
- [26] Kumar, V., & Shah, S. R. (2022). A mathematical study for heat transfer phenomenological processes in human skin. *International Journal of Mechanical Engineering*, 7(6), 683-692.
- [27] Kumar, V., & Shah, S. R. (2022). Thermobiological mathematical model for the study of temperature response after cooling effects. *SSRG International Journal of Applied Physics*, 9(2), 7-11.
- [28] Kumar, V., & Shah, S. R. (2024). Dispersion of pharmaceutical agents in constricted and bent arteries: Insights from numerical and computational simulations. *International Journal of Advanced Research in Social Sciences and Humanities*, 8(2), 17-31.
- [29] Kumar, V., & Shah, S. R. (2024). Mathematical modeling of mechanical forces and chemical reaction dynamics for restoring shape memory in sickle-cell red blood cells. *Research Review International Journal*, *9*(12), 31-44. https://doi.org/10.31305/rrijm.2024.v09.n12.005
- [30] Kumar, V., Shah, S. R., "Assessing the clinical outcomes of hydroxyurea treatment in patients with sickle cell disease", International Journal Of Progressive Research In Engineering Management And Science, Vol. 05, Issue 03, March 2025, pp : 1089-1097, (2025).
- [31] Kumar, V., Shah, S. R., "Holistic Benefits of Yoga: A Dual Approach to Cardiovascular Health and Obesity Control" International Journal of Yoga and Allied Sciences Vol 14, No: 1, pp:118-130, (2025).

| ed | IJPREMS www.ijprems.com litor@ijprems.com | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT AND SCIENCE (IJPREMS) (Int Peer Reviewed Journal) Vol. 05, Issue 04, April 2025, pp : 2915-2926 | e-ISSN : 2583-1062 Impact Factor : 7.001 |
|------|--|---|--|
| [32] | Kumar, V., Shah, S. R modern pedagogy", In 145, (2025). | ., "Integrating evidence-based teaching in yoga and ayurveda: Hernational Journal of Yogic, Human Movement and Sports Scient | 3ridging tradition with nces 2025: 10(1): 141- |
| [33] | Kumari, N., & Shah, S. South Asia. <i>Internation</i> | R. (2024). Examining women's representation in disaster risk reduced Journal of Disaster Management, 2(1), 1-3. | uction strategies across |
| [34] | Mahesh, Arya, S., & Shah, S. R. (2024). Optimizing cardiovascular health: Ayurvedic insights into blood flow through normal and stenosed arteries. <i>International Journal of AYUSH</i> , 13(5), 18-35. | | |
| [35] | Majhi, L., & Shah, S. Balancing hormones na | R. (2024). The bioinspired significance of black cohosh in Ayur aturally. <i>International Journal of Research and Analytical Review</i> | vedic women's health: vs, 11(4), 749-759. |

- [36] Maurya, K., & Shah, S. R. (2024). Mathematical modeling of blood flow dynamics in catheterized narrow arteries: Impact of non-Newtonian blood behavior and catheter dimensions. *International Research Journal of Modernization in Engineering Technology and Science*, 6(12), 3368-3378.
- [37] Mo Sadique, Kshitendra Mohan Jaishwal, Sapna Ratan Shah, "Assessing the Influence of Glucosamine Supplementation on Synovial Fluid Dynamics in Osteoarthritic Knee Joints", (2024) "International Journal of Applied Sciences and Biotechnology, Vol. 12(2): 84-91.10.3126/ijasbt.v12i2.65009.
- [38] Mo. Sadique and Sapna Ratan Shah, "Mathematical model to study the squeeze film characteristics of synovial joints in diseased human knee joint", World Scientific Annual Review of Biomechanics, 1 (2330004) 1-21, (2023). World Scientific Publishing Company DOI: 10.1142/S2810958923300044, ISSN (print): 2810-9589 | ISSN (online): 2810-9597.
- [39] Mohammed Alshehri, Sunil Kumar Sharma, Priya Gupta and Sapna Ratan Shah, "Empowering the visually impaired: Translating Handwritten Digits into Spoken Language with HRNN-GOA and Haralick Features", Journal of Disability Research, 3, 1-21, (2024). e-ISSN: 2676-2633. Print ISSN: 1658-9912. DOI:10.57197/JDR-20230051, 18 January 2024.
- [40] Mohammed Alshehri, Sunil Sharma, Priya Gupta, Sapna Ratan Shah, "Detection and Diagnosis of Learning Disabilities in Children of Saudi Arabia with Artificial Intelligence", Research Square, 1-22, (2023). https://doi.org/10.21203/rs.3.rs-3301949/v1.
- [41] National Education Policy (NEP) 2020. Ministry of Education, Government of India.
- [42] Parambath, A. B., Arora, K., & Shah, S. R. (2024). Quantitative analysis of hematopoietic and leukemic stem cell dynamics in acute myeloid leukemia: A mathematical approach. *International Journal of Mathematics and Computer Research*, *12*(9), 4422-4435. https://doi.org/10.47191/ijmcr/v12i9.02
- [43] Prachi, Arya, S., & Shah, S. R. (2024). Exploring the diagnostic and therapeutic implications of Tridosha imbalances on dream phenomena in working women: An Ayurvedic perspective. *International Journal of AYUSH*, *13*(9), 55-75.
- [44] Prachi, Arya, S., & Shah, S. R. (2024). Investigating dream phenomena in Ayurveda for women: Diagnostic and therapeutic insights into Tridosha imbalances. *International Journal of Ayurveda and Pharma Research*, *12*(8), 73-81.
- [45] Prithvi Singh, Rubi Solanki, Alvea Tasneem, Simran Suri, Harleen Kaur, Sapna Ratan Shah, Ravins Dohare, "Screening of miRNAs as prognostic biomarkers and their associated hub targets across Hepatocellular carcinoma using survival-based bioinformatics approach", Journal of Genetic Engineering and Biotechnology, 22 (1), 1-10, March (2024). https://doi.org/10.1016/j.jgeb.2023.100337 ISSN: 1687-157X.
- [46] Priyanka Kasturia, Rohit Kumar Sharma, Purnima Chaturvedi, Ravins Dohre, Sapna Ratan Shah, "Efficacy of venetoclax and azacitidine for targeting leukemic stem cell in acute myeloid leukemia", International Journal of Biology, Pharmacy and Allied Sciences, 13(6), 3072-3090, (2024). https://doi.org/10.31032/IJBPAS/2024/13.6.8960 JUNE, 2024.
- [47] Purnima Chaturvedi, Sapna Ratan Shah "Assessing the Clinical Outcomes of Voxelotor Treatment in Patients with Sickle Cell Disease" International Journal of Applied Sciences and Biotechnology, 12(01), 46-53 MARCH (2024). DOI: 10.3126/ijasbt.v12i1.64057, ISSN 2091-2609.
- [48] Rohit Kumar, Sapna Ratan Shah, Thomas Stiehl, "Understanding the impact of feedback regulations on blood cell production and leukemia dynamics using model analysis and simulation of clinically relevant scenarios", Applied Mathematical Modelling, 129, 340-389, February (2024). https://doi.org/10.1016/j.apm.2024.01.048, 0307-904X.
- [49] S. R. Shah, "A study of blood flow through multiple atherosclerotic arteries", International Journal for Mathematics, Vol. 1, (12), pp. 1-6, (2015).
- [50] S. R. Shah, "Mathematical Study of Blood Flow through Atherosclerotic Artery in the Presence of Porous Effect", International Journal of Modern Sciences and Engineering Technology, Vol. 2, (12), pp.12-20, (2015).
- [51] S. R. Shah, "Significance of Aspirin on Blood Flow to Prevent Blood Clotting through Inclined Multi-Stenosed Artery", Letters In Health and Biological Sciences, Volume 2(2), pp. 97-100, (2017).



- [52] S. R. Shah, A mathematical study of blood flow through radially non-symmetric multiple stenosed arteries under the influence of magnetic field", International Journal of Advanced Research in Biological Sciences. Vol. 2 (12), pp. 379-386, (2015).
- [53] S. R. Shah, Anamika, "Mathematical and Computational study of blood flow through diseased artery, International Journal of Computer Sciences, Vol.5(6), (2017).
- [54] S. R. Shah, and Anamika, "A mathematical model of blood flow through diseased blood vessel", International Journal of Emerging Trends and Technology in computer Science, Vol. 6, (3), pp. 282-286, (2017).
- [55] S. R. Shah, and Anamika, "Mathematical and Computational study of blood flow through diseased artery", International Journal of Computer Science, Vol. 5, (6), pp. 1-6, (2017).
- [56] S. R. Shah, Anuradha and Anamika, "Bio-Computational analysis of blood flow through two phase artery", International Journal of Engineering Science and Computing, Vol. 7, (6), pp.13397-213401, (2017).
- [57] S. R. Shah, Anuradha Singh and Anamika, "Mathematical Modelling Of Blood Flow through Three Layered Stenosed Artery", International Journal for Research in Applied Science and Engineering Technology, Vol. 5, (6), pp. 1-6, (2017).
- [58] S. R. Shah, Rohit Kumar "A mathematical approach to study the blood flow through tapered stenosed artery with the suspension of nanoparticles" Destech Transactions on Engineering and Technology Research, Vol.01, pp. 1-6, (2017).
- [59] S. R. Shah, Rohit Kumar, "Study of blood flow with suspension of nanoparticles through tapered stenosed artery, Global Journal of Pure and Applied Mathematics, Volume 13, Number 10 (2017), pp. 7387-7399.
- [60] S. R. Shah, Rohit Kumar, Anamika, "Mathematical Modelling of blood flow through tapered stenosed artery with the suspension of nanoparticles using Jeffrey fluid model", International journal of development research, Volume 07, No. 06, pp. 13494-13500, (2017).
- [61] S. R. Shah, S.U. Siddiqui, "A Physiologic Model for the problem of blood flow through Diseases blood vessels", International journal of advances in Applied Sciences, Vol.5(2), pp. 58-64, (2016).
- [62] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "A Mathematical Model to study the similarities of blood fluid models through inclined multi-stenosed artery", International Journal of Engineering Research and Modern Eduacation, Vol. 2, (1), pp. 108-115, (2017).
- [63] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "Effects of inclined multi-stenoses arteries on blood flow characteristics using Bingham Plastic Fluid", International Journal for Mathematics, Vol. 1, (12), pp. 7-14, (2015).
- [64] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "Mathematical Modeling and Numerical Simulation of Blood Flow through Tapered Artery", International Journal of Innovative Science, Engineering & Technology, Vol. 3, (2), pp. 710-717, (2016).
- [65] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "Mathematical Modeling of peristaltic blood flow through a vertical blood vessel using Prandtl Fluid Model", International Journal of Mathematics and Computer Research, Vol. 4, (9), pp. 710-717, (2016).
- [66] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "Mathematical Modelling and Analysis of Blood Flow through Diseased Blood Vessels", International Journal of Engineering and Management Research, Vol. 5(6), pp. 366-372, (2015).
- [67] S. R. Shah, S.U. Siddiqui, Anuradha Singh, "Performance of blood flow through two phase stenosed artery using Herschel-Bulkley model", International Journal of Applied And Pure Science and Agriculture, Vol. 2, (2), pp. 228-240, (2016).
- [68] S. U. Siddiqui, S. R. Shah, Geeta, "A Computational Analysis of a Two-Fluid non-Linear Mathematical model of pulsatile blood flow through Constricted Artery", E-Journal of science and Technology, Vol. 10(4), pp.65-78, (2015).
- [69] Sadique, M., & Shah, S. R. (2022). Mathematical model to study the effect of PRG4, hyaluronic acid, and lubricin on squeeze film characteristics of diseased synovial joints. *International Journal of Mechanical Engineering*, 7(6), 832-848.
- [70] Sadique, M., & Shah, S. R. (2022). Mathematical study for the synovial fluid flow in osteoarthritic knee joint. *Journal of Engineering and Applied Sciences*, 17(2), 15-21.
- [71] Sadique, M., & Shah, S. R. (2024). The role of mathematics in the development of biomedical robotics and devices for healthcare. *International Journal of Research in Computer Applications and Robotics*, 12(12), 1-15.
- [72] Sadique, M., Jaiswal, K. M., & Shah, S. R. (2023). Mathematical modelling and analysis of squeeze film lubrication in hip joint: a comprehensive sphere plate model investigation.. https://doi.org/10.22541/au.169783564.46816055/v1.
- [73] Sadique, M., Shah, S. R., Sharma, S. K., & Islam, S. M. N. (2023). Effect of significant parameters on squeeze film characteristics in pathological synovial joints. *Mathematics*, *11*(1468), 1-23. https://doi.org/10.3390/math11061468



editor@ijprems.com

INTERNATIONAL JOURNAL OF PROGRESSIVE
RESEARCH IN ENGINEERING MANAGEMENTe-ISSN :
2583-1062AND SCIENCE (IJPREMS)
(Int Peer Reviewed Journal)Impact
Factor :
7.001

- [74] Sapna Ratan Shah Jeya Suriya Lenin, "Mathematical Analysis of Stem Cell Dynamics in Acute Myeloid Leukemia: Towards Precision Medicine Strategies, International Journal of Science and Research (IJSR) 13(05), 528-535, (2024). ISSN: 2319-7064, DOI: https://dx.doi.org/10.21275/SR24509000022.
- [75] Sapna Ratan Shah, Mahesh, Sudheer Arya "Optimizing cardiovascular health: ayurvedic insights into blood flow through normal and stenosed arteries, International Journal of AYUSH, 13 (5), 18-35, MAY (2024). ISSN 2349-7025, file:///Users/sapnaratanshah/Downloads/ORA+03+IJAYUSH+2278-4.pdf.
- [76] Sapna, S. (2009). Analysis of non-Newtonian fluid flow in a stenosed artery. *International Journal of Physical Sciences*, 4(11), 663-671.
- [77] Self Employed Women's Association (SEWA). (2022). Annual Report 2021-22. Retrieved from https://www.sewa.org
- [78] Sen, A. (1999). *Development as Freedom*. Oxford University Press.
- [79] Sengar, N., & Shah, S. R. (2024). Analysing the socio-economic conditions and challenges faced by domestic women helpers in India's informal labour market. *International Journal of Advance Research*, *12*(11), 898-910. https://doi.org/10.21474/IJAR01/19900
- [80] Sengar, N., & Shah, S. R. (2024). Examining the domestic adversities imposed by patriarchy on working women: A sociological perspective. *International Journal of Social Sciences and Management*, *11*(4), 95-105.
- [81] Sengar, N., & Shah, S. R. (2024). Women in the informal labor sector: The situation of domestic helpers in Indian households. *International Journal of Social Science and Economic Research*, 9(11), 5581-5596.
- [82] Sengar, N., Yadav, P., & Shah, S. R. (2025). An analysis of occupational health risks and outcomes among female agricultural laborers in India. *International Journal of Progressive Research in Engineering Management and Science*, 5(2), 1202-1211. https://doi.org/10.58257/IJPREMS38718
- [83] Sengar, N., Yadav, P., & Shah, S. R. (2025). Analysing the role of NGOs and government initiatives in advancing women's health in India. *International Journal of Progressive Research in Engineering Management and Science*, 5(2), 1213-1221. https://doi.org/10.58257/IJPREMS38711
- [84] Shabab Akbar and Sapna Ratan Shah Kshiteendra Mohan Jaiswal, Mo. Sadique "Exploring capillary-tissue fluid exchange: Insights into red cell deformation in narrow vessels and its clinical implications", International Journal of Fauna and Biological Studies, 11(3), 4-14, MAY (2024). https://doi.org/10.22271/23940522.2024.v11.i3a.1021. Online ISSN: 2347-2677.
- [85] Shabab Akbar, Sapna Ratan Shah, "Mathematical Modeling of Blood Flow Dynamics in the Cardiovascular System: Assumptions, Considerations, and Simulation Results", Journal of Current Medical Research and Opinion, 7(4), 2216-2225, (2024). https://doi.org/10.52845/CMRO/2024/7-4-2, 9 April, 2024.
- [86] Shabab Akbar, Sapna Ratan Shah, Mohammed Alshehri, Sunil Kumar Sharma, and Priya Gupta, "A Mathematical Study for Promoting Disability Inclusion in Glaucoma: A Comprehensive Approach", Journal of Disability Research, 3, 1-12, (2024). e-ISSN: 2676-2633. Print ISSN: 1658-9912. DOI:10.57197/JDR-2023-0062.
- [87] Shah, S. R. (2010). A study of effects of magnetic field on modified power-law fluid in modeled stenosed artery. *Journal of Bioscience and Technology*, *1*(4), 187-196.
- [88] Shah, S. R. (2011). Capillary-tissue diffusion phenomena for blood flow through a stenosed artery using Herschel-Bulkley fluid. *International Journal of Research in Biochemistry and Biophysics*, 1(1), 1-8.
- [89] Shah, S. R. (2011). Effects of acetylsalicylic acid on blood flow through an artery under atherosclerotic condition. *International Journal of Molecular Medicine and Advanced Sciences*, 7(6), 19-24.
- [90] Shah, S. R. (2011). Impact of radially non-symmetric multiple stenoses on blood flow through an artery. *International Journal of Physical and Social Sciences*, *1*(3), 1-16.
- [91] Shah, S. R. (2011). Mathematical analysis of blood flow through atherosclerotic arterial segment having nonsymmetric mild stenosis. *International Journal of Research in Pure and Applied Physics*, 1, 1-5.
- [92] Shah, S. R. (2011). Non-Newtonian flow of blood through an atherosclerotic artery. *Research Journal of Applied Sciences*, 6(1), 76-80.
- [93] Shah, S. R. (2011). Response of blood flow through an atherosclerotic artery in the presence of magnetic field using Bingham plastic fluid. *International Journal of Pharmaceutical and Biomedical Research*, 2(3), 96-106.
- [94] Shah, S. R. (2011). Role of non-Newtonian behavior in blood flow through normal and stenosed artery. *Research Journal of Biological Sciences*, 6(9), 453-458.
- [95] Shah, S. R. (2011). Study of modified Casson's fluid model in modeled normal and stenotic capillary-tissue diffusion phenomena. *International Journal of Computational Engineering & Management*, 11, 51-57.
- [96] Shah, S. R. (2012). A biomechanical approach for the study of deformation of red cells in narrow capillaries. *IJE: Transaction A: Basics*, 25(4), 303-313.
- [97] Shah, S. R. (2012). A biomechanical approach for the study of two-phase blood flow through stenosed artery. *Journal of Engineering and Applied Sciences*, 7(2), 159-164.
- [98] Shah, S. R. (2012). A case study of non-Newtonian viscosity of blood through atherosclerotic artery. *Asian Journal of Engineering and Applied Technology*, *1*(1), 47-52.



- [101] Shah, S. R. (2013). An innovative solution for the problem of blood flow through stenosed artery using generalized Bingham plastic fluid model. *International Journal of Research in Applied and Natural Social Sciences*, *1*(3), 97-140.
- [102] Shah, S. R. (2013). An innovative study for non-Newtonian behavior of blood flow in stenosed artery using Herschel-Bulkley fluid model. *International Journal of Biosciences and Biotechnology*, 5(5), 233-240.
- [103] Shah, S. R. (2013). Effects of antiplatelet drugs on blood flow through stenosed blood vessels. *Journal of Biomimetics, Biomaterials and Tissue Engineering, 18,* 21-27.
- [104] Shah, S. R. (2014). Effect of clopidogrel on blood flow through stenosed artery under diseased condition. International Online Medical Council (International Journal of Pharmacy Teaching and Practices), 5(1), 887-893.
- [105] Shah, S. R. (2014). Performance modeling and analysis of magnetic field on nutritional transport capillary tissue system using modified Herschel-Bulkley fluid. *International Journal of Advanced Research in Physical Sciences*, *1*(1), 33-41.
- [106] Shah, S. R. (2015). A mathematical study of blood flow through stenosed artery. *International Journal of Universal Science and Engineering*, 1(1), 26-37.
- [107] Shah, S. R. (2021). Clinical influence of hydroxychloroquine with azithromycin on blood flow through blood vessels for the prevention and treatment of COVID-19. *International Journal of Biology, Pharmacy and Allied Science, 10*(7), 2195-2204.
- [108] Shah, S. R. (2022). Study of dispersion of drug in blood flow with the impact of chemical reaction through stenosed artery. *International Journal of Biosciences*, 21(3), 21-29.
- [109] Shah, S. R. (2024). Enhancing educational outcomes: The impact of human resource management practices on educator satisfaction in Dehradun. *International Journal of Management*, 15(5), 172-186. https://doi.org/10.5281/zenodo.14043040
- [110] Shah, S. R. (2025). Optimization of luspatercept treatment for beta-thalassemia transmission control using pure fraction mathematical modeling. *Advances in Biomedical and Health Sciences*, *4*, 11-18.
- [111] Shah, S. R., & Akbar, S. (2020). Mathematical study for the outflow of aqueous humor and function in the eye. *International Journal of Scientific & Engineering Research*, *11*(10), 743-750.
- [112] Shah, S. R., & Arya, D. (2024). Human resource management strategies for improving educational outcomes in Bihar. *International Journal of Humanities Social Science and Management*, 4(4), 955-963.
- [113] Shah, S. R., & Arya, D. (2024). Optimizing educational outcomes: The role of human resource management in Jharkhand's education system. *International Journal of Novel Research and Development*, *9*(8), b51-b57.
- [114] Shah, S. R., & Kumar, P. (2021). A hydromechanical perspective to study the effect of body acceleration through stenosed artery. *International Journal of Mathematical Engineering and Management Sciences*, *6*(5), 1381-1390.
- [115] Shah, S. R., & Kumar, R. (2018). Performance of blood flow with suspension of nanoparticles through tapered stenosed artery for Jeffrey fluid model. *International Journal of Nanoscience*, *17*(6), 1850004 (1-7).
- [116] Shah, S. R., & Kumar, R. (2020). Mathematical modeling of blood flow with the suspension of nanoparticles through a tapered artery with a blood clot. *Frontiers in Nanotechnology*, 2, Article 596475, 1-5.
- [117] Shah, S. R., & Shah, R. R. (2024). Assessment of road user costs for arterial streets in Ghaziabad City: An analysis of vehicle operation, accident impacts, and travel time efficiency. *International Journal of Architecture*, *10*(2).
- [118] Shah, S. R., & Siddique, S. U. (2012). Achievement of pentoxifylline for blood flow through stenosed artery. *Journal of Biomimetics, Biomaterials and Tissue Engineering, 13*, 81-89.
- [119] Shah, S. R., & Siddiqui, S. U. (2011). A comparative study for the non-Newtonian behaviour of blood flow through atherosclerotic arterial segment. *International Journal of Pharmaceutical Sciences Review and Research*, 9(2), 120-125.
- [120] Shah, S. R., & Siddiqui, S. U. (2011). Two-phase model for the study of blood flow through stenosed artery. *International Journal of Pharmacy and Biological Sciences*, 1(3), 246-254.
- [121] Shah, S. R., & Yadav, P. (2024). Female domestic laborers in the urban informal economy: A case analysis of Delhi. *International Research Journal of Modernization in Engineering Technology and Science*, 6(8), 216-225.
- [122] Shah, S. R., Chaturvedi, P., Akbar, S., & Kumar, R. (2021). Prospective of hydroxychloroquine and zinc with azithromycin for nanoparticles blood flow in COVID-19 patients. *International Journal of Nanotechnology in Medicine & Engineering*, 6(1), 01-07.

| IIPREMS | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT | e-ISSN : 2583-1062 |
|--------------------|--|-----------------------|
| | AND SCIENCE (IJPREMS) | Impact |
| www.iiprems.com | (Int Peer Reviewed Journal) | Factor : |
| editor@ijprems.com | Vol. 05, Issue 04, April 2025, pp : 2915-2926 | 7.001 |

[123] Shah, S. R., Sengar, N., & Yadav, P. (2024). Economic conditions and age profile of women domestic workers in Delhi's urban informal sector. *International Journal of Research Publication and Reviews*, *15*(8), 494-500.

- [124] Sharma, R. K., Akbar, S., Kumar, V., Jaiswal, K. M., Kumar, V., Upadhyay, A. K., Sadique, M., Chaturvedi, P., & Singh, A. (2024). Optimizing cardiovascular performance following myocardial infarction: The significance of nitroglycerin in regulating blood flow. *Janaki Medical College Journal of Medical Sciences*, 12(2), 32-45.
- [125] Siddiqui, S. U., & Km. Sapna. (2006). Herschel-Bulkley fluid model for stenosis shape aspects of blood flow through an artery. *Ultra Science, International Journal of Physical Sciences, 18*(3), 407-416.
- [126] Siddiqui, S. U., & Sapna. (2004). Study of blood flow through a stenosed capillary using Casson's fluid model. *Ultra Science, International Journal of Physical Sciences, 16*(2), 133-142.
- [127] Siddiqui, S. U., & Sapna. (2006). Effect of shape of stenosis on the resistance to flow through an artery. *Reflection Des ERA: An International Quarterly Periodical of Science*, 1(3), 257-272.
- [128] Siddiqui, S. U., Sapna, & Geeta. (2013). Mathematical modelling of blood flow through catheterized artery under the influence of body acceleration with slip velocity. *Application and Applied Mathematics: An International Journal*, 8(2), 481-494.
- [129] Siddiqui, S. U., Shah, S. R., & Geeta. (2014). Effect of body acceleration and slip velocity on the pulsatile flow of Casson fluid through stenosed artery. *Advance in Applied Science Research*, 5(3), 213-225.
- [130] Siddiqui, S. U., Shah, S. R., & Geeta. (2015). A biomechanical approach to the effect of body acceleration through stenotic artery. *Applied Mathematics and Computation*, 109(1), 27-41.
- [131] Siddiqui, S. U., Shah, S. R., & Geeta. (2015). A mathematical model for two-layered pulsatile blood flow through stenosed arteries. *E-Journal of Science and Technology*, *1*(10), 27-41.
- [132] Singh, A., & Shah, S. R. (2024). Influence of transverse magnetic field on steady blood flow in a stenosed artery: Numerical and analytical insights. *International Journal of Mathematical Archive*, *15*(8), 1-10.
- [133] Singh, A., & Shah, S. R. (2025). Enhanced pumping of blood flow in peristaltic transport of non-Newtonian fluids. *Research Review International Journal of Multidisciplinary*, 10(1), 216-225. https://doi.org/10.31305/rrijm.2025.v10.n1.026
- [134] Singh, N., & Shah, S. R. (2024). Comparative analysis of blood viscosity and flow dynamics in normal and diabetic patients. *International Journal of Recent Scientific Research*, *15*(9), 4982-4988.
- [135] Singh, N., & Shah, S. R. (2024). Exploring acute lymphoblastic leukemia dynamics through mathematical modeling of hematopoietic disruption. *International Research Journal of Modernization in Engineering Technology and Science*, 6(7), 3971-3981.
- [136] Singh, S. (2010). A mathematical model for modified Herschel-Bulkley fluid in modeled stenosed artery under the effect of magnetic field. *International Journal of Bioengineering and Technology*, 1(1), 37-42.
- [137] Singh, S. (2010). Influence of magnetic field on blood flow through stenosed artery using Casson's fluid model. International Journal of BioEngineering, CardioPulmonary Sciences and Technology, 1, 1-7.
- [138] Singh, S. (2010). Numerical modelling for the modified power-law fluid in stenotic capillary-tissue diffusion phenomena. *Archives of Applied Science Research*, 2(1), 104-112.
- [139] Singh, S. (2011). A two-layered model for the analysis of arterial rheology. *International Journal of Computer Science and Information Technology*, *4*, 37-42.
- [140] Singh, S. (2011). Clinical significance of aspirin on blood flow through stenotic blood vessels. *Journal of Biomimetics, Biomaterials and Tissue Engineering, 10,* 17-24.
- [141] Singh, S. (2011). Effects of shape of stenosis on arterial rheology under the influence of applied magnetic field. *International Journal of Biomedical Engineering and Technology*, 6(3), 286-294.
- [142] Singh, S. (2011). Numerical modeling of two-layered micropolar fluid through a normal and stenosed artery. *International Journal of Engineering*, 24(2), 177-187.
- [143] Singh, S. (2011). The effect of saline water on viscosity of blood through stenosed blood vessels using Casson's fluid model. *Journal of Biomimetics, Biomaterials and Tissue Engineering*, *9*, 37-45.
- [144] Singh, S., & Shah, R. R. (2010). A numerical model for the effect of stenosis shape on blood flow through an artery using power-law fluid. *Advance in Applied Science Research*, *1*, 66-73.
- [145] Singh, S., & Shah, S. R. (2025). Understanding blood flow in stenosed arteries: Newtonian and non-Newtonian fluid comparisons. *Research Review International Journal of Multidisciplinary*, 10(1), 203-215. <u>https://doi.org/10.31305/rrijm.2025.v10.n1.025</u>
- [146] Singh, V., & Shah, S. R. (2024). Enhancing cardiovascular health: The positive impact of yoga on blood flow and circulation. *Aathiyoga Indian Journal of Ancient Medicine and Yoga*, *1*(1), 1-12.
- [147] Singh, V., & Shah, S. R. (2024). The multifaceted health benefits of yoga: A comprehensive review of physical, mental, and quality of life improvements. *International Journal of Ayush Case Reports*, 8(3), 436-447.
- [148] Singh, V., & Shah, S. R. (2025). Holistic benefits of yoga: A dual approach to cardiovascular health and obesity control. *International Journal of Yoga and Allied Sciences*, *14*(1), 118-130.

| IIPREMS | INTERNATIONAL JOURNAL OF PROGRESSIVE RESEARCH IN ENGINEERING MANAGEMENT | e-ISSN : 2583-1062 |
|---------------------------------------|--|-----------------------|
| | AND SCIENCE (IJPREMS) | Impact |
| www.ijprems.com editor@ijprems.com | (Int Peer Reviewed Journal) Vol. 05, Issue 04, April 2025, pp : 2915-2926 | Factor : 7.001 |
| | | |

[149] Somveer, & Shah, S. R. (2024). Bioinspired mathematical modeling of chemical dispersion in narrow and curved arteries: A computational approach. *International Journal of Mathematical Archive*, *15*(11), 1-9.

- [150] Sudheer Arya, Lilima Majhi, Sapna Ratan Shah, "Exploring Shilajatu's Therapeutic Potential in Diabetes Management: A Comprehensive Study Integrating Ayurvedic Wisdom and Modern Science", International Journal of Science and Research, 13(5), 1374-1380, MAY, (2024). https://dx.doi.org/10.21275/SR24522110012. ISSN: 2319-7064.
- [151] UNESCO. (2023). Education Transforms Lives.
- [152] UNICEF. (2019). *The State of the World's Children 2019: Children, Food and Nutrition*. Retrieved from https://www.unicef.org
- [153] World Health Organization (WHO). (2019). Delivering quality health services: A global imperative for universal health coverage. Geneva: WHO. Government of India. (2020). Sabla Scheme: Empowering Adolescent Girls. Ministry of Women and Child Development.
- [154] Yadav, P., Sengar, N., Shah, S. R., "Analysing Occupational Health Issues among Female Farm Laborers in India", International Journal of Science and Management Studies (IJSMS), Volume: 8 Issue: 2 March to April (2025). 10.51386/25815946/ijsms-v8i2p105