



D.R.C. Hanwella,^{1,2}

¹ Department of Psychiatry

² Faculty of Medicine, Colombo
National Hospital of Sri Lanka

To Research or Not: The Psychology of Research Engagement and Avoidance

Abstract

Research is driven by a confluence of personal, societal, technological, and institutional motivations. This article looks at the psychology behind why individuals are drawn to or deterred from research pursuits. In the historical context, intrinsic motivations such as personal aspirations and the innate human curiosity to unravel mysteries are recognised factors. Societal expectations, underscored by the allure of recognition and the drive to address global challenges, further fuel research endeavours. Technological innovations act as catalysts, opening uncharted territories for exploration. Institutional incentives, while motivating, come with their share of pressures, influencing an individual's research activities. However, potential deterrents like the fear of failure, competition for funding, and impostor syndrome can hinder research aspirations. In understanding these dynamics, recommendations are given for institutions and policymakers to foster a supportive and thriving research environment. By addressing both the motivations and deterrents, a forward momentum can be achieved in the domain of research.

Key Words: Research engagement, Research avoidance, Psychology of research, Intrinsic motivations, Societal expectations,

Introduction

Research stands as a cornerstone of medical advancement. From the discovery of antibiotics to the mapping of the human genome, research has consistently provided answers to the important questions in medicine, dramatically transforming the lives of millions. Yet, behind every research paper, laboratory experiment, and clinical trial, there are researchers—individuals driven by a mix of personal, professional, and societal factors [1]. What motivates these individuals? Alternatively, what factors deter others from pursuing or continuing their research endeavours?

As we move into an era of personalized medicine, rising global health challenges, and rapid technological advancements, the need for research is even more pressing. To harness the fullest potential of the global research community, understanding what drives or hampers researchers is pivotal. By understanding why individuals choose the rigorous path of research,

institutions, mentors, and policymakers can better support and encourage the growth of the research community.

Motivation, especially in a field as intricate and challenging as medical research, is multifaceted. It's not just about the desire to discover the unknown or make a name for oneself. The motivations span a broad spectrum, from intrinsic factors like personal curiosity and the desire for mastery to extrinsic ones like career advancement, financial rewards, and societal recognition [2,3]. Motivating factors are also personal. Some researchers might be inspired by personal experiences, such as a loved one suffering from a particular ailment, while others might be driven by the sheer joy of intellectual challenge.

The barriers to research are equally complex. Psychological barriers like the fear of failure or impostor syndrome might hold back potential researchers. Practical challenges such as lack of resources or institutional pressures can play a significant role in deterring research pursuits.

■ Prof. Raveen Hanwella,
MBBS(Col), MD(Psy), FRCPsych,
FSLCPsych, FCCP, Chair &
Senior Professor of Psychiatry
Department of Psychiatry,
Faculty of Medicine, Colombo,
Hon Consultant Psychiatrist,
National Hospital of Sri Lanka

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Historical context

The practice of research is a testament to humanity's insatiable curiosity and the relentless pursuit of knowledge. From the ancient civilizations of Mesopotamia, Egypt, and Greece to the Renaissance period and beyond, research has played an indispensable role in the progress of civilization, especially in the realm of medicine [4].

The ancient Greeks laid the foundations for systematic investigation and empirical observation. Hippocrates moved away from attributing diseases to divine intervention and instead sought natural causes. His methodical approach to understanding diseases and their treatments was the dawn of clinical research. They marked the beginnings of change—where observations took precedence over superstitions.

The Renaissance period, with its emphasis on humanism and learning, advanced various fields, including medicine. There was a renewed interest in the human body and its functioning, with anatomists like Andreas Vesalius challenging traditional knowledge and pushing for hands-on dissections and examinations. The meticulous drawings and observations of the time deepened our understanding of human anatomy and physiology.

As we transitioned into the modern era, the importance of methodical research became increasingly clear. The 19th and early 20th centuries, characterized by the Industrial Revolution and rapid societal changes, bore witness to many medical discoveries. The identification of microbes by Louis Pasteur and Robert Koch radically transformed our understanding of infectious diseases. Their work was underpinned by a systematic approach to experimentation and validation, qualities that define contemporary research.

In the 20th century, the field of medical research witnessed an explosion of knowledge. Advancements in technology and methodology meant that researchers could now delve deeper into cellular and molecular aspects of diseases. The discovery of the DNA double helix by James Watson and Francis Crick in the 1950s is a prime example of this period's revolutionary discoveries. Such breakthroughs were not just the result of technological prowess but also a testimony to an evolving mindset that valued collaboration, openness to challenge established notions, and an intrinsic motivation to unravel the mysteries of life.

The road to discovery was never easy. Every researcher, in their pursuit of knowledge, faces challenges—be it societal scepticism, lack of resources, or personal dilemmas. The stories of researchers like Rosalind Franklin, whose pivotal role in the discovery of the DNA structure was overlooked for many years, remind us of the complexities and intricacies of the research world.

But the motivations driving research centuries ago might differ from those of today. While the core essence of curiosity remains consistent, external factors, societal values, and personal circumstances have evolved. The historical context serves not just as a reflection of past motivations and deterrents but as a mirror to understanding the present. By understanding where we came from, we can better appreciate the many factors that motivate or deter individuals from research today and shape the future path of medical discovery.

Psychological motivations for engaging in research

Medical research is often a personal journey, underpinned by a web of psychological motivations. While every researcher's story is unique, several overarching themes consistently surface as driving forces behind the decision to tread this challenging path.

1. **Intrinsic curiosity:** At the heart of many scientific endeavours is pure, unbridled curiosity. Since time immemorial, humans have been driven by a need to understand the world around them [5]. This inherent desire to unravel mysteries, especially about our own health and body, can be a compelling force. Researchers often describe the exhilaration of uncovering something previously unknown, as a feeling akin to a child's wonder. This innate thirst for knowledge often forms the bedrock of a researcher's journey.
2. **Personal relevance:** For many, pursuing research is deeply personal. A family member's ailment, a personal health challenge, or even a chance encounter with someone affected by a particular condition can sow the seeds of a lifelong quest for answers. This personal connection can serve as a constant source of motivation, reminding the researcher of the tangible impact their work could have.
3. **Intellectual challenge:** Research, with its myriad complexities, presents an intellectual puzzle. For those with a penchant for problem-solving,

hypothesizing, testing, and iterating can be irresistibly enticing. The thrill of overcoming theoretical and practical challenges, designing experiments, and drawing connections between disparate pieces of information can be deeply satisfying [6,7].

4. **Desire for mastery and competence:** According to Self-Determination Theory, one of the innate psychological needs is the desire for competence. Engaging in research allows individuals to deeply immerse themselves in a subject, striving for mastery. As researchers delve deeper, they not only accumulate knowledge but also hone skills and methodologies, achieving a sense of proficiency and expertise [8].
5. **Legacy and contribution:** A drive for many is the idea of leaving a legacy, of contributing something of lasting value to humanity. The prospect of one's research advancing medicine, shaping treatment modalities, or altering the course of diseases can be a powerful motivator. The idea of one's work echoing through the annals of medical history, benefiting countless individuals in the future, can spur researchers on even during challenging times [9].
6. **Recognition and validation:** While it might seem secondary, the recognition of one's peers, institutions, and the broader community plays a role in motivating researchers [10,9]. Winning awards, publishing in prestigious journals, or being invited to speak at conferences can serve as external validation, reinforcing the significance and value of their work [11,12].
7. **Collaborative synergy:** The collaborative nature of research can also be a draw for many. Engaging with like-minded individuals, brainstorming ideas, challenging each other's hypotheses, and jointly celebrating successes or navigating failures can be profoundly fulfilling. This sense of community and shared purpose adds another layer of motivation.

The psychological motivations for engaging in research are a blend of personal, professional, and societal influences. They shape a researcher's journey, propelling them forward, even when faced with seemingly insurmountable obstacles. Understanding these motivations provides invaluable insights into the passionate individuals who navigate it.

Barriers to engaging in research

While the drive to conduct research is propelled by multifaceted motivations, there are equally complex barriers that might deter individuals from initiating or continuing their research journey. These deterrents, both psychological and practical, can sometimes overshadow the intrinsic and extrinsic motivators.

1. **Fear of failure:** Perhaps one of the most formidable psychological barriers is the fear of failure. Research is fraught with uncertainties. Experiments can yield unexpected results, and hypotheses may be disproven. For some, the looming possibility of not achieving desired outcomes, especially after investing significant time and effort, can be daunting [13,14].
2. **Impostor syndrome:** Many researchers, especially those early in their careers or in highly competitive fields, grapple with impostor syndrome—the feeling that they do not belong or are not as competent as others perceive them to be. This internalized self-doubt can hamper their confidence and hinder their willingness to take risks or pursue novel ideas [15].
3. **Lack of resources:** Research often demands significant resources—be it advanced equipment, specialized reagents, or funding. In settings where these are scarce, potential researchers can feel stymied, their ambitions stifled by logistical constraints.
4. **Institutional pressures:** Some academic and research institutions prioritize certain types of research, often those that garner more funding or prestige. Researchers passionate about less-recognized or unconventional areas might feel marginalized, leading to disillusionment.
5. **Overwhelming workload:** The sheer workload associated with research, from conducting experiments and analysing data to writing papers and securing grants, can be overwhelming. The perceived lack of work-life balance might deter some, especially those juggling personal responsibilities alongside professional aspirations.
6. **Navigating bureaucracy:** The administrative aspect of research, including securing permissions, dealing with ethical review boards, and manag-

ing grants, can be intricate and time-consuming. For those more inclined towards the scientific facets, navigating these bureaucratic channels can be discouraging.

7. **Lack of mentoring and guidance:** Effective mentoring is crucial in shaping a researcher's journey. Absence of guidance, or worse, experiences with unsupportive or exploitative mentors, can significantly deter budding researchers. Positive mentorship experiences can provide direction, instil confidence, and open doors; its absence can have the opposite effect.
8. **Societal and cultural pressures:** In certain cultures, or communities, research might not be viewed as a lucrative or prestigious career path. Societal pressures to pursue more "stable" professions or earn immediate returns can dissuade individuals from following a research trajectory.
9. **Isolation and mental health concerns:** Intense research can sometimes be isolating, especially when long hours are spent in laboratories or behind computer screens. The emotional and psychological toll, coupled with a potential lack of mental health resources, can be a significant deterrent.
10. **Changing landscape and uncertainties:** The dynamic nature of the research landscape, with shifting priorities, evolving methodologies, and changing funding sources, can introduce uncertainties. For those seeking a more predictable path, these fluctuations can serve as a barrier.

Addressing these barriers requires a multipronged approach. Institutions, funding bodies, mentors, and the broader research community need to recognize and actively address these challenges. By creating supportive environments, providing resources, and fostering positive mentoring relationships, we can ensure that these barriers are not insurmountable and that potential researchers are not lost to these challenges.

The Role of institutional and societal support

Support, both institutional and societal, is paramount in nurturing and sustaining a robust research culture. Without the right frameworks and encouragement in place, even the most motivated researchers may find their aspirations stifled. Let us explore the multifaceted role of such support systems in bolstering research endeavours.

1. **Funding and financial support:** Research is an intricate endeavour, often requiring substantial financial resources. Institutions and societies play a critical role in ensuring consistent funding. By offering grants, fellowships, and scholarships, they can ease the financial burdens that might otherwise deter potential researchers. This support not only funds experiments but also symbolizes validation of the researcher's efforts.
2. **Infrastructure and resources:** Beyond finances, institutions provide the infrastructure. State-of-the-art laboratories, advanced equipment, digital databases, and libraries are all crucial for innovative research. By investing in these resources, institutions can facilitate smoother research journeys.
3. **Training and skill development:** Continuous learning is intrinsic to research. Institutions can foster this by organizing workshops, seminars, and training sessions. These platforms offer researchers the chance to refine their skills, stay updated with the latest methodologies, and broaden their knowledge horizons.
4. **Mentorship programs:** An effective mentor can make a world of difference in a researcher's life, guiding them through challenges, offering insights, and providing moral support. Institutions should prioritize establishing robust mentorship programs, pairing budding researchers with experienced mentors in their field.
5. **Collaborative opportunities:** Collaboration amplifies the potential of research. By encouraging inter-departmental, interdisciplinary, and even international collaborations, institutions can open doors to diverse perspectives, shared resources, and broader knowledge bases.
6. **Recognition and awards:** Recognizing and rewarding exemplary research efforts are crucial. Awards, honours, and recognitions, both at institutional and societal levels, serve as motivators. They not only validate a researcher's efforts but also inspire others to strive for similar excellence.
7. **Public engagement and outreach:** Societies play an essential role in demystifying research for the public. Engaging outreach programs, public lectures, and open-house lab days can bridge the gap between researchers and the community. Such

initiatives help in garnering public support, which can be influential in shaping research policies and funding decisions.

8. **Ethical guidelines and oversight:** Institutions bear the responsibility of ensuring that research is conducted ethically. By establishing clear ethical guidelines, review boards, and oversight mechanisms, they can ensure that research maintains the highest standards of integrity.
9. **Supportive work environments:** A positive, inclusive, and supportive work environment is integral to researcher well-being. Institutions need to ensure that they address issues like work-life balance, mental health resources, and mechanisms to deal with any forms of harassment or discrimination.
10. **Adaptive policies:** The world of research is ever-evolving. As new challenges and opportunities emerge, institutions and societies need to be adaptable. Policies should be regularly reviewed and updated to align with current needs, ensuring that they remain relevant and supportive.

While individual motivation is a significant driver of research, the broader ecosystem encompassing institutions and societies plays an indispensable role in shaping a researcher's journey. Their support, or lack thereof, can make or break research aspirations. As we strive for global advancements, understanding and amplifying this supportive role becomes crucial for fostering a vibrant and impactful research community.

The Future of research motivations and deterrents

As the landscape of medicine and research evolves, so too will the motivations and deterrents for individuals considering this path. With rapid technological advancements, shifts in societal values, and global challenges such as pandemics and climate change, the future will undoubtedly bring new perspectives to the realm of research.

1. **Technological advancements:** The increasing integration of artificial intelligence, big data analytics, and advanced biotechnologies will revolutionize how research is conducted. For many, the allure of working with innovative technologies will be a significant motivator [6,7]. However, there's also the potential deterrent of needing to constantly up-skill and adapt to an ever-changing technological environment.

2. **Global challenges:** As seen with the COVID-19 pandemic, global challenges require immediate, collaborative, and intensive research efforts. Such events underscore the critical importance of research in societal well-being, which can be a motivating factor for many. Conversely, the immense pressures associated with such research can be daunting for some.
3. **Interdisciplinary collaboration:** The future of research is collaborative and interdisciplinary. The complexity of modern-day challenges requires insights from diverse fields. This interconnectedness can be a significant draw, offering researchers a broader perspective and a richer intellectual environment. However, it might also mean navigating the nuances of multiple disciplines, which can be challenging.
4. **Open science and accessibility:** Movements towards open-access journals, transparent data sharing, and collaborative platforms are democratizing research. This can motivate those who value widespread dissemination and collaboration. On the flip side, concerns about intellectual property and data, privacy can emerge as deterrents.
5. **Shifts in societal values:** As societies become more knowledge-driven, there's a growing appreciation for research and its contributions. This societal support can be motivating. However, there's also increasing scrutiny and expectations for ethical and socially responsible research, which can be seen as added pressures.
6. **Personalized medicine:** The move towards more personalized medical treatments, based on an individual's genetic makeup and specific health profile, will necessitate intensive research. The opportunity to work on such tailored solutions can be enticing, but it also introduces complexities in data management and ethical considerations.
7. **Mental health focus:** The increasing recognition of mental health's importance might motivate more researchers to delve into this area. However, the very nature of research – often isolated and pressure-driven – can raise concerns about researchers' mental well-being, potentially acting as a deterrent.
8. **Funding dynamics:** As priorities shift, so will funding sources and structures. Areas of research that align with future global needs might see more

financial support, motivating researchers to pivot towards these fields. Conversely, areas that experience reduced funding can deter researchers because of resource constraints.

9. **Ethical considerations:** The future will bring forth novel ethical dilemmas, especially with advancements in genetic engineering, neural interfaces, and AI. Navigating these uncharted ethical waters will be both a motivator (for those interested in setting the groundwork) and a deterrent (because of potential controversies).
10. **The role of citizen science:** With increasing access to information and tools, the line between professional researchers and enthusiastic citizens is blurring. This democratization can motivate a broader population to engage in research activities. However, it might also introduce concerns about data validity and research quality.

In navigating the future, it's crucial for institutions, societies, and researchers themselves to be adaptable, open-minded, and forward-thinking. By understanding potential future motivations and deterrents, the research community can proactively create an environment that nurtures curiosity and innovation while addressing emerging challenges.

Recommendations for institutions and policymakers

For the research domain to thrive and continue its trajectory of ground-breaking discoveries, institutions and policymakers collaborate to address both motivational factors and deterrents. By doing so, they can create an environment favourable to research. Here are some recommendations to consider:

1. **Establish comprehensive funding mechanisms:** The backbone of any research endeavour is financial backing. Establish diverse funding streams, including government grants, private partnerships, and international collaborations. Create contingency funds for projects that might face unexpected challenges [1].
2. **Prioritize mental wellbeing:** The pressures associated with research can be overwhelming. Institutions should offer mental health services tailored to researchers, including counselling, stress-relief workshops, and resilience-building programs.
3. **Embrace technological advancements:** Ensure researchers have access to the latest tools and technologies. This includes not just purchasing equipment but also offering training sessions on their optimal utilization.
4. **Promote collaborative platforms:** Facilitate spaces where researchers from different fields can come together, share ideas, and embark on interdisciplinary projects. This could be physical spaces like innovation hubs or digital platforms for virtual collaborations.
5. **Implement robust mentorship programs:** Pair budding researchers with seasoned experts. These relationships can provide invaluable guidance, support, and networking opportunities, ensuring younger researchers navigate the research landscape with confidence.
6. **Cultivate a culture of recognition:** Recognize and celebrate research achievements at all levels, from student projects to veteran researchers. Awards, honours, publications, and public acknowledgments can significantly boost motivation.
7. **Ensure ethical research practices:** Establish and regularly update clear ethical guidelines. Regular workshops on ethical considerations, especially in rapidly advancing fields, ensure researchers remain informed and responsible.
8. **Engage in continuous dialogue:** Keep channels of communication open between administrative bodies and researchers. Understand their needs, challenges, and aspirations. This continuous feedback loop ensures policies remain relevant and supportive.
9. **Invest in skills development:** Beyond traditional research methodologies, provide training in soft skills such as communication, leadership, and project management. These skills are crucial, especially when researchers aim to translate their findings into real-world applications or when they collaborate in diverse teams.
10. **Address deterrents head-on:** Regularly assess potential deterrents within the institution. Whether it's inadequate resources, bureaucratic challenges, or issues related to work-life balance, addressing these proactively can prevent potential dropouts from the research domain.

11. **Promote public engagement:** Facilitate platforms where researchers can communicate their findings to the public. This not only garners societal support, but also emphasizes the importance of research in everyday life.
12. **Implement inclusive policies:** Ensure research environments are inclusive and diverse. Cater to the needs of researchers from different backgrounds, genders, and abilities, ensuring everyone has an equal opportunity to thrive.
13. **Future-proofing research endeavours:** Stay updated with global research trends. Prepare researchers for upcoming challenges, whether they are technological, ethical, or societal.
14. **Facilitate work-life balance:** Recognize the importance of a balanced life. Implement policies that allow flexible working hours, parental leave, and opportunities for sabbaticals.
15. **Strengthen international collaborations:** In our interconnected world, research challenges are often global. Foster partnerships with international institutions, facilitating exchange programs, joint projects, and global think tanks.

The success of research endeavours hinges significantly on the proactive measures taken by institutions and policymakers. By fostering a supportive, inclusive, and forward-thinking environment, they can ensure that research thrives, continually pushing the boundaries of human knowledge and innovation [7,4, 16].

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