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Do Multidisciplinary and Interdisciplinary Approaches Add Value to Medical Research?

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ABSTRACT

We live in a time when technology, science, communication and cultural activities are intertwined. The intense interaction of concepts with such a wide scope that requires a great deal of time and effort to be an expert makes it even more difficult to succeed. Moreover, this includes success at the institutional level as well as at the individual level. Because it is no longer enough to have high-level skills and knowledge in a single subject to reach the determined targets. Therefore, collaborating and advancing towards the same goal with people who have proven themselves in different fields becomes necessary, sometimes even necessary. At this point, we come across the concept of a multidisciplinary approach. When conducting a study, scientists often want to collaborate with a few colleagues or disciplines. Because the expectations of the readers from the studies containing many authors are great. In addition, as the number of people involved in the work increases, contrary to expectations, it is seen that the time needed for the work is longer.

KEYWORDS

Multidisciplinary, interdisciplinary, approaches, medical research

INTRODUCTION

There are also studies that we carry out on our own. Since such studies are under the control of a single person, they can be completed in a shorter time, but the margin of error is higher. Here, I aimed to discuss how the number of people and disciplines participating in the study will affect the emergence time and quality of the work. Its importance is increasing especially in scientific research and studies. It is important for the integrity of the study how to approach the studies to be carried out[1]. A serious paradigm shift is taking place in science. Previously, science was autonomous in itself, but in the recent century, the universality of knowledge has emerged. Then it was concluded that everything in the universe is interconnected. The concept of a multidisciplinary approach was first introduced by quantum physics. With the concept of the butterfly effect after quantum physics, we concluded that an unexpected event can cause huge changes that we never expected[2]. This shows that the sciences in the universe are not independent of each other, but that each branch of science is interconnected. Since every branch of science is interconnected in the academic field, multidisciplinary meetings and studies gain value, especially in health sciences. Many tissues, organs and even cells in the human body work in conjunction with each other and when the balance in this system is disrupted, we encounter many malfunctions.

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However, the organ that provides the organization of this balance is the brain. Because each organ has a biochemical counterpart in the brain. Based on this, we can conclude that multidisciplinary approaches must also have a supervisor and coordinator.

Both multidisciplinary and interdisciplinary work involves integrating knowledge and expertise from multiple disciplines to address complex problems. However, there are some differences between the two approaches[3].

Multidisciplinary studies typically involve experts from different disciplines working independently on a project, each contributing their specific knowledge and expertise. Each discipline has its methods, theories and terminology and the goal is to bring together different perspectives to tackle a problem. Interdisciplinary studies, on the other hand, involve experts from different disciplines working together to create a common conceptual framework for understanding and addressing a problem[4].

Experts collaborate in interdisciplinary studies to build a common vocabulary and technique, as well as to combine insights from other disciplines into a holistic approach to the problem. In the case of developing a new medical device, a team of medical specialists, engineers, technicians, software developers, designers and many other business experts should take a multidisciplinary approach. Such cooperation will ensure that the medical and technological foundations of the project are laid firmly and that information will be gathered to create more effective solutions[5].

ADVANCEMENT OF KNOWLEDGE

Interdisciplinary studies can lead to discoveries and advances in knowledge by integrating insights from different fields and creating new opportunities for collaboration and research.

ENHANCED SOCIAL AND ENVIRONMENTAL IMPACT

Interdisciplinary studies can have a positive impact on society and the environment by addressing complex issues that require collaboration between different fields and disciplines.

Overall, interdisciplinary studies have the potential to provide significant benefits and advances in a wide variety of fields, from science and technology to social and environmental issues. Interdisciplinary studies can bring together experts from different disciplines and bring more comprehensive, innovative and effective solutions to complex problems. Overall, both multidisciplinary and interdisciplinary studies are valuable approaches to tackling complex problems. The choice of approach will depend on the specific issue being addressed and the expertise of the team involved[6].

It seems that this multidisciplinary study of the human body should also be applied to the branches of expertise in scientific fields. Therefore, branches that are increasingly divided and independent from each other are coming together again and evolving toward the way of working. In medicine, congresses and meetings are now being held as multidisciplinary. Such multidisciplinary and interdisciplinary meetings are increasing day by day in non-medical sciences. Scientists from different disciplines contribute to each other by making new presentations. Such meetings are an opportunity for the emergence of many new treatment methods in multidisciplinary and interdisciplinary fields of study White *et al.*[7].

Division of labor and specialization in a particular field paves the way for many discoveries and successes today. However, for this specialization to go further, the expert must go beyond the boundaries of his field and receive support from other fields. Otherwise, professional specialization may go into a vicious circle after a while and move away from the ability to produce innovation. Therefore, there is a need for a planned and systematic methodological transformation beyond producing content for new technological environments[8].

Multidisciplinary studies in medicine refer to the integration of knowledge and expertise from various medical disciplines to address complex health issues. This approach recognizes that no single discipline has all the answers to a particular health problem and that a collaborative effort is necessary for effective diagnosis, treatment and prevention.

SOME EXAMPLES OF MULTIDISCIPLINARY STUDIES IN MEDICINE INCLUDE

Cancer treatment: A team of oncologists, radiologists, surgeons and other specialists work together to determine the best course of treatment for a patient with cancer.

Such patients should receive follow-up and therapy support from other medical branches as well as oncology treatment[9].

In cases of chronic diseases such as diabetes, hypertension, or heart disease, the help of many specialists such as cardiologists, internal medicine specialists, dietitians and physiotherapists, who should cooperate with family physicians, is needed for efficient follow-up of the patient[10].

In medical-based scientific research, physicians work in collaboration with scientists from different fields such as biology, chemistry, physics and engineering to develop new medical technologies, diagnoses and treatment methods.

Many preventive, health promotion, environmental health and curative public health programs are also often run through communication between health care providers, administrators and other professionals[11].

In general, multidisciplinary studies in medicine emphasize a patient-centered approach that takes into account the biological, psychological, social and environmental factors that contribute to health and disease. Working together, medical professionals can develop more effective and holistic approaches to improving health outcomes for patients.

The fact that scientific studies are of interest to the whole world and that disciplines work together on climate change, inequalities in health and social problems, which are among the sustainable development goals, will perhaps provide a better future for humanity. Interdisciplinary studies will be more efficient than each discipline working alone in terms of producing solutions to problems. When it comes to complex problems in the field of health, a single discipline will not be able to solve this problem or it will take a long time to solve it. For this reason, the approach of the relevant disciplines such as retrospective, prospective and case-control studies and the working team's approach to the problem from different perspectives may be the easiest way to reach a solution.

However, the reason why these scientific methods cannot be carried out effectively and the underlying lack of cooperation is not clear enough. Both multidisciplinary and interdisciplinary approaches can add significant value to medical studies.

Medical studies frequently face complicated problems that no single area or specialty can adequately handle. Bringing together professionals from many fields might thus provide a comprehensive view of medical investigations and aid in the achievement of more effective findings.

A multidisciplinary approach to a problem entails the cooperation of experts from multiple disciplines. A cancer treatment team, for example, may include oncologists, radiologists, surgeons and other professionals. This group's goal is to find the best treatment strategy for cancer diagnosis, treatment and patient follow-up.

Each expert can contribute to this goal by using the knowledge and skills from their area of expertise.

CONCLUSION

The interdisciplinary approach, on the other hand, aims to address a problem by collaborating between different disciplines. For example, a healthcare team may come together to address an illness with medical, psychological, social and environmental factors. This approach can offer a more comprehensive and holistic solution by addressing different aspects of the problem. If you want to advance in science, you must leave your laboratories and work by connecting with other laboratories. Multidisciplinary studies by journals and project publications, things that various countries and disciplines produce together contribute more to science. Therefore, multidisciplinary studies in science mean the future of science. As a result, the use of both multidisciplinary and interdisciplinary approaches in medical studies can make an important contribution to a better understanding of health problems, better treatment planning and better results.

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