Science and Religion: The Quest for Knowledge and Certainty in the Postmodern Era [The Cases of Medicine and Psychiatry]

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Abstract:
For almost three hundred years since its birth in the seventeenth century, modern science did not have an epistemologically legitimate space for the study of religion. The study of religion did not fit into the positivist perspective of modern science based on the notions of truth and certitude. Social and human sciences, particularly medicine, psychology, and psychiatry, under the veil of positivism, did not regard religion as a serious topic for scientific investigation. However, there is a new conception of science today. In the new conception, Heisenburg's principle of uncertainty is basic to human knowledge. Human knowledge now is seen as inherently limited, uncertain, and probabilistic. This new notion of science has created a new era of relations between science and religion. In medicine and psychiatry, there is growing today a new movement for the scientific study of the relevance of religion and spirituality in health and healing. There is growing an epistemologically legitimate space within medicine and psychiatry for serious investigation of the role of human subjectivity. This new epistemological turn, however, is also socially constructed in the context of postmodern discourses on the limits of human rationality and the role of subjectivity in the construction of human knowledge.

Introduction

The rise of postmodern discourses has brought a series of new challenges in our thought and knowledge. One of the significant intellectual challenges is the concern to understand the role of human subjectivity – the role of the mind, the soul, spirituality, and sensibilities – in the shaping of human knowledge and actions. Whether human subjectivity can be a proper domain of scientific analysis is a problem as old as the birth of Greek philosophy. Socrates valued the notion of the soul, but it was he who laid the foundation of secular philosophy and human skepticism. And by laying the foundation of secular philosophy, Socrates also laid the foundation of modern science.

The birth of the Scientific Revolution in the seventeenth century, however, led to the demise of the notion of skepticism, particularly in the domain of science. Modern science, for the last three hundred years, was guided by the notion of certitude. Through the remarkable discoveries of Nicolas Copernicus [1473-1543], Francis Bacon [1561-1626], Galileo Galilei [1564-1642], Johannes Kepler [1571-1630], Rene Descartes [1596-1650], and Isaac Newton [1642-1727], modern science emerged as the dominant epistemology in the seventeenth century. Modern science left no epistemological space for religion and transcendental skepticism in the understanding of the nature and the universe. Modern science described the nature as a giant machine of unfathomable patterns of laws created some billion years ago out of the chaos of the Big Bang. (Parker,1998) John Locke's naturalistic psychology, Auguste Comte's positivism, and

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the neo-positivism of the Vienna Circle – all lend credence and legitimacy for the exclusion of human subjectivity from scientific knowledge even in the domain of human sciences. The dominance of the positivist and empiricist conception of science remained unchallenged until about the 1970s.

From the beginning of the 1970s, a new epistemological movement, however, began to grow among the philosophers of science in both sides of the Atlantic. The notion of scientific positivism began to be largely discarded. Thomas Kuhn's *The Structure of Scientific Revolutions* (1971) was certainly an opening gun. Through a meticulous examination of the history of the development of scientific discoveries using the notion of paradigm, Kuhn argued that scientific knowledge is inseparable from human subjectivity. But more important for the new epistemological turn was the rise of new skepticism within the domain of science itself. The rise of Quantum Physics, Particle Physics, Molecular Biology, and many other branches of science from the beginning of the 1920s have been advancing a notion that scientific knowledge is inherently uncertain and limited by nature.

The purpose of this article is to examine how is this post-positivist epistemology of science reshaping the debates between science and religion? How are the debates between science and religion being recast in the context of the post-positivist concerns for the understanding of human subjectivity? The main argument of the paper is that through its own evolution, modern science itself has come to a stage of development where the traditional conflicts between science and religion are being reexamined. There is developing within science, particularly in medicine and human sciences, an epistemological space for the reevaluation of the role of religion and spirituality. The notion of spirituality is regaining an acceptance in the doing of postmodern science and scientific discourses. This new paradigmatic turn in the five thousand years history of relations between science and religion is both socially constructed in the context of postmodern conditions, and epistemologically justified in the context of the notion of post-modern science. The cases of medicine and psychiatry have been examined to substantiate the arguments.

Conflicts between Science and Religion: Some Historical Notes

One of the oldest and earliest conflicts in human knowledge and thought is between science and religion. This conflict started almost half a millennium before the birth of Christ. One historian notes: "Since at least as early as 450 B.C., Western intellectuals have periodically shown intense concern over the degree of integration of scientific attitudes, techniques, and ideas into the broader culture from which they emerge" (Olson, 1982:1). In different stages of the growth of civilization starting from the Ancient Near East to the rise of modern urban industrial society in Europe, science and religion have deeply conflicted over the issue of the creation and

the constitution of valid knowledge. The search for validity has been the driving force behind the growth of human knowledge since the beginning of the evolution of human reason.

Over the last two thousand years, the positions of religion and science on the issue of knowledge validity have remained largely unchanged. For religion, particularly, the great organized religions, except Buddhism, God's revelation is the source of the certitude of human knowledge. For science, particularly modern science, knowledge validity is a matter of construction. The universe is a giant machine understandable by its own inexorable laws and principles, and it has evolved out of chaos in the domain of nature some billion years ago. Humans are constellations of atoms and molecules, and human life has evolved out of chaos in the chemical domain of life some million years ago.

Although modern science is less than five hundred years old, and modern science-based industrial civilization is less than two hundred years old, science as a human passion for understanding the mysteries of nature and life is as old as the civilizations of the Sumerians and the Babylonians; it existed in Ancient Near East about three-thousand years before the birth of Christ. The Sumerians and the Babylonians did not have organized religions, but had beliefs in deities, heavenly bodies, and the supernatural control of nature and life. Their religion sharply opposed the validity of mathematical astronomy discovered by their scholars. The conflict between religion and science began from that ancient time.

Ancient Athens made some remarkable progress in naturalistic philosophy and learning (Drees, 1996), but the Athenians "did not tolerate the natural philosophers and chatters about things in the sky, as they called them, dissolving divinity into irrational causes, blind forces, and necessary properties. Protagoras was banished, Anaxagoras put under restraint, and Socrates lost his life through his devotion to philosophy" (Olson, 1982: 80). The Athenians "blamed the decline of their political and military fortunes on the scientific intellectuals' undermining the traditional religion, law, and morality, and on the corrosive cynicism that they spawned" (Olson, 1982: 105). However, it was from that time that science began to grow as an autonomous sphere of intellectual activity, and a concept of scientific community as a separate group of believers began to take shape from ancient Athens. Socrates, Plato, and Aristotle praised what later Merton called "disinterestedness" in the search of truth, and this "encouraged the isolation of scientific attitudes and activities from other cultural concerns almost until the Renaissance " (Olson, 1982: 143).

In the history of relations between science and religion, no event is more significant than the rise of Christianity in the West. In 352 A.D., Roman Emperor Constantine accepted Christianity, and made Christianity the legal religion of the entire Roman Empire. It was after the rise of Christianity to power that an epistemological war broke up between science and religion, a war, which shaped the history of relations between science and religion for almost fifteen hundred years.

The early Christianity and the Latin Fathers "were much less sympathetic to pagan science and philosophy than their Alexandrian counterparts" (Olson, 1982:161). The real problem was "that for Christians in the second and third centuries A.D., as for Greek polytheists in the sixth and fifth centuries B.C., attempt at scientific understanding too often seemed to lead to religious undermining" (Olson, 1982:161). However, the movement of conversion at that time also brought many classically trained intellectuals into the leadership of the new religion, like St. Augustine and St. Ambrose, who made some significant efforts to produce "critical linkages between Christian doctrines and Greco-Roman learning"(Olson, 1982:178). Augustine's "authorization of some training in secular studies, especially in logic and mathematics, encouraged the development of an institutional format for Christian education that contained a substantial scientific component as a background to theological studies" (Olson, 1982:164).

Another intriguing turn in the history of relations between science and religion came when Europe entered the Dark Ages after the fall of the Roman Empire. Classical secular science and learning began to disintegrate in the face of the advancement of the early Christianity. The rise of Islam in power in the tenth century provided a fertile soil for the advancement of science. In about two hundred years, almost the whole of ancient and classical Greco-Roman works in science was translated into Arabic. There also emerged at that time, under the active patronage of the Islamic royalties, a critical mass of secular scientific community within the Islamic civilization. (Nasr, 1968)

The relations between science and religion, from the beginning of the rise of Christianity up to the twelfth century, can be described as one of mutual tolerance. There were theological oppositions to science, but they did not produce intense conflicts of political nature. "In its early formative years, Christianity came to have a vastly more favorable outlook on the physical universe than the other Eastern mystery cults with which it competed; and as a consequence, Christian religion and scientific systems became intertwined in such a way as to make natural theology, grounded in the theory that God could be understood through the study of the world, a central feature of early Christian thought" (Olson, 1982: 205). In the same way, Islamic scholars held the view that the understanding of nature by reason is a way of understanding God. The Quran, they said, stipulates that men should seek knowledge of their maker through the study of nature and its interpretation by reason.

From the beginning of high Middle Ages in the thirteenth century, the relations between science and religion began to be intensely antagonistic, and this period, which I call the period of the struggle for epistemological power, continued up to the advent of modernity in the nineteenth century. From the beginning of the high Middle Ages, when the Church was becoming a dominant political instrument in the advancing feudal society, science was also growing as a dominant intellectual specialty centering on the medieval universities. The social and political advancement of religion on the one hand, and the growth of a secular environment for science

and learning on the other, created the ground for the break up of an epistemological war. It began probably from 1277 when the Bishop of Paris, with the support of the Pope, condemned a set of 219 theses derived from the ideas of Aristotle and Avicenna – the great Islamic scholar. The reason for the condemnation was that those ideas contradicted the basic Christian doctrines and scriptures.

The war between science and religion further intensified in the late Middle Ages when "there came, one after the other, five of the greatest men our race has produced – Copernicus, Kepler, Galileo, Descartes, and Newton – and when their work was done, the old theological conception of the universe was gone" (White, 1928:15). The Copernican Theory challenged the validity of ancient spiritual cosmology, which was the ground for the rationalization of the Church's fundamental claim as a mediator between man and God. The Catholic Church was, therefore, quick to reject the Copernican discovery. Since Galileo openly advocated that the Copernican system was true, he was immediately declared as a heretic. After the publication of Galileo's "Dialogue Concerning the Two Chief World Systems," he was tried as a heretic and given a life imprisonment in Rome. "In the middle ages, doubt was sin, because it questioned God. For Descartes and the modern age, doubt by unmasking and investigating conventional plausibility is now a virtue" (Thielicke, 1990: 57). Newton's theory of gravitation "was fatal to the old theory of creation, for he had shown throughout the universe, in place of almighty caprice, all-pervading law". (White, 1928:15).

Science and religion entered into a new phase of relations with the decline of the middle ages and the advent of modernity. The modern period has been a time of increasing isolation and separation between science and religion. The emergence of modern age signified the epistemological triumph of scientific worldview over that of religion. This began from the rise of Reformation, and progressed through the Renaissance, Scientific Revolution, American Revolution, French Revolution, and the Industrial Revolution of the nineteenth century. While the Reformation, Renaissance, and the Scientific Revolution brought a change in the religious worldview, the American Revolution, for the first time, laid the foundation of a secular polity. With the emergence of a secular polity, secular learning became the dominant intellectual ideology of modern society, first in America, and then in the whole world through the process of modernization (Hovenkamp, 1978). Religion was not abolished from the civil society and its authority on spiritual knowledge was not taken away. But the possibilities for epistemological conflicts have been removed by legally and politically keeping religion separated from the domain of secular learning and activities.

However, the conflicts and tensions between science and religion, and the sacred and secular, did not end with the rise of secular polities in the twentieth century. As science became more advanced, its epistemological territory began to widen. The widening boundary of modern science, particularly biology and genetics, are now invading in a far more aggressive way the

boundary of spirituality. This is opening a new era of tensions between science and religion in the 21st century. The expanding growth of the movements of creationism and scientology, and the global rise of fundamentalism in politics in modern societies suggest that the schism between science and religion and their epistemological war is far from over.

Evolutions in the Nature of Modern Science and Scientific Epistemology

Alfred North Whitehead once said, "It is no exaggeration to say that the future course of history depends on the decision of each generation as to relations between science and religion." Different ages of civilizations had also different perspectives on relations between science and religion. From the beginning of rudimentary science in the Ancient Near East around 450 B.C to roughly about 1200 A.D., the relations were of mutual tolerance. Neither science nor religion had social and political power to impose an epistemological dominance. During the reign of early Christianity and the Islamic civilizations, (Nasr, 1968) theological justifications were even made for the pursuit of naturalistic learning and philosophy.

From 1200 A.D. to the advent of modernity in the nineteenth century, for about eight hundred years, relations between science and religion were antagonistic and sometimes intensely conflicting. (White, 1928). The growth of political power in the hands of the medieval Church on the one hand, and the growth of science as an autonomous sphere of intellectual activity in the medieval universities on the other, created the grounds for intense ideological wars. The Scientific Revolution of the seventeenth century, and the advent of modernity in the eighteenth and nineteenth centuries, brought the triumph of science over religion. From then, there began a new stage of separation and isolation between science and religion to the twentieth century.

From the later part of the twentieth century, however, we can see the growth of a new paradigmatic turn in relations between science and religion, and this is happening particularly because of the changing nature of science and its epistemology. For the first time, in the history of relations between science and religion, there is now growing a scientific justification for the understanding and exploration of religion and spirituality. There is growing in postmodern science, in other words, an evaluative space to understand the epistemological relevance of religious and mystical knowledge.

The philosophical view of science that emerged after the Scientific Revolution of the seventeenth century, and the view which modern society has permeated to grow in almost all its institutional sectors, is that science is qualitatively different from other branches of knowledge and intellectual activities. "According to a familiar traditional view, science is a distinctive enterprise, demarcated sharply from all other human pursuits" (Shapere, 1985: 1). This distinctive ideology of science has been broadly described as positivism. The positivists and empiricists reject the knowledge of the scriptures because that knowledge, according to them, is surrounded with

spirituality and mysticism, and it is unseen, unobservable, and beyond the boundary of human experience. As Karl Popper described, "The positivists believe that they have to discover a difference, existing in the nature of things, as it were, between empirical science on the one hand and metaphysics on the other. They are continually trying to prove that metaphysics by its very nature is nothing but nonsensical twaddle -- 'sophistry and illusion', as Hume says, which we should 'commit to the flames'" (1968:35).

David Hume's "Enquiry Concerning Human Understanding" (1902) claimed that experience and observation are the key ingredients of scientific knowledge. For Hume, scientific knowledge must be based on observation and not contemplation and recollection. Scientific understanding must be grounded in experience and verification. As Karl Popper again remarked, "The positivist dislikes the idea that there should be meaningful problems outside the field of 'positive' empirical science -- problems to be dealt with by a genuine philosophical theory" (1968:5). The positivist ideology created a radical epistemological disjunction between science and religion.

For almost three hundred years, positivism has been the dominant ideology of modern science. However, from the middle of the 20th century, the essence of positivism began to be seriously questioned by philosophers of science. "That tradition, as is well known, is now rejected almost universally. The notion of "observational facts" as brute undeniable givens, wholly independent of our fragile and insecure interpretations of them was all but surrendered, and the idea that there was anything "given" in experience was thrown in jeopardy" (Shapere, 1985:1). Out of the revolt against positivism, there began to grow a new conception of science, and it is within this new conception that there is developing an evaluative space for the scientific exploration of religion and spirituality. "The twentieth century has witnessed that long process of cultural adjustment in the west that has sometimes been described as deconversion -- a learning to leave with an absence of God" (Brooks, 1996:323).

The new science is based on the notion that theories are radically underdetermined by observation. Observations and experience are theory-ladden, and that there could be an infinite number of alternative explanations for any given problem (Stockman, 1983). The growth of science, according to the new conception, is a matter of the rise and decline of various interpretative frameworks or "paradigms" as Thomas Kuhn (1971) described it. It is these frameworks, which guide "the construction of evidence, observation, fact, explanation, and theory, and which even determine the methodological rules, and the goals of science itself" (Shapere, 1985:2). The interpretative frameworks, in turn, are based on presuppositions, and "differ in fundamental, perhaps incommensurable, ways from tradition to tradition or from group to group" (Shapere, 1985:2).

Science does not reveal the truth of a fact for once and for all, as the positivists claimed. Science grows through trial and error (Popper, 1969), and through a process of evolution in

thought and ideas (Bhaskar, 1978; Campbell, 1974), a process, which is a human activity, and a matter of human knowledge construction (Mendelsohn, Weingart, & Whitley, 1977)

A series of new conceptual and epistemological ideas, which have been confirmed by many discoveries in modern astronomy, quantum physics, particle physics, molecular biology, neurobiology, genetics, and cognitive sciences that there is now growing a legitimate space for the evaluation of religious knowledge within the bounds of science. The first is the notion that science, like all other forms of knowledge, deals with illusive reality. "The recognition that physicists dealt with models of an elusive reality, and that no one model could give an exhaustive account of subatomic phenomena, allowed a little humility to enter the dialogues between scientists and theologians" (Brooks, 1996: 330).

The second is the notion of indeterminacy. The positivist model was based on the notion of certitude. The rise of quantum physics and the general acceptance of Hinesburg Uncertainty Principle [HUP] by the contemporary scientific community have permanently changed the notion of truth and certitude in modern science. The prevailing notion is that for any fact or an event at a given point of time, there may exist several probable explanations. In a Quantum Mechanical World, scientists cannot understand the behavior of particles with 100% certainty. They can understand only in terms of probabilities. Albert Einstein and Christian Bohr strongly argued that, "recent developments in quantum mechanics demanded a complete renunciation of the classical ideal of causality and radical revision of attitudes toward the problem of physical reality" (Brooks, 1996:327). Noble Laureate Physicist Richard Feynman found the same principle of indeterminacy to be true. "Philosophers have said that if the same circumstances don't always produce the same results, predictions are impossible, and science will collapse. Here is a circumstance – identical photons are always coming down in the same direction to the same piece of glass – that produces different results. We can not predict whether a given photon will arrive at A or B" (Feynman, 1983: 19). British astronomer Arthur Eddington "even made the extraordinary remark that religion first became possible for a reasonable scientific man about the year 1927" (Brooks, 1996: 327).

Closely related to the notion of indeterminacy is the principle of complementarities between different levels and explanations. This means that scientific facts can be explained in multiple ways and means. The study of structures should not mean that cultural explanations are invalid. Emphasis on objectivism should not render subjectivist ideas irrelevant. "Denying that mechanistic explanation rendered teleological explanation superfluous, Christian Bohr had argued for their complementarities. For an exhaustive account of animal behavior, both were required" (Brooks, 1996:332).

Another important conception is the idea of holistic knowledge. The positivist ideology was based on the assumption that the behavior of a complex system is deducible and understandable from the behavior of its component parts. The new science claims that the

understanding of the emergent behavior of complex systems needs a holistic perspective. The Newtonian physics, the special theory of relativity, and the general theory of relativity have explained different aspects of the nature, but what is still missing is a holistic understanding of the nature as a totality. (Davis, 2002)

Today, one of the theoretical issues in physics is the formulation of a "theory of everything," which will unify all the above into a single theory. Three physicists, - David J. Gross, H. David Politzer and Frank Wilczek – received Noble Prize in 2004 for making this fundamental discovery of the theory of everything – the Wave Theory. Quantum mechanics requires a holistic approach. As Bohr explained, "The future of wholeness typical of proper quantum phenomena finds its logical expression in the circumstance that any well defined subdivision would demand a change in the experimental arrangement incompatible with the definition of the phenomena under investigation" (Brooks, 1996:330). It is this postmodern trend of thought that begins to produce a space for the evaluation of religious knowledge and spirituality in science, particularly in human sciences. (Roberts, 2002).

In the twentieth century, there was an unprecedented degree of progress in science. Significant theoretical developments have been achieved in physics, astronomy, biology, physiology, medicine, artificial intelligence, psychology, sociology, economics, political science and many other branches of knowledge. These achievements, however, have brought human knowledge to a new threshold from where more questions are being raised than answered. What is happening is that science has not only improved our knowledge, it has also enlarged the boundary of our ignorance. As one astronomer says: "It is somewhat paradoxical that the more we know about the universe, the more we seem not to know. We know the amounts that go into the cosmic recipe, but not most of the ingredients (Gleiser, 2001:233). Recent astronomical discovers suggest that there are thousands of galaxies, and they are still evolving and receding from each other in the boundless time and space of the universe. (Ivars, 1993)

Modern biology has discovered that the DNA is the smallest unit of life. The scientists working with the Human Genome Project found that probably about 100,000 genes are the ultimate deciders of the beauty and the variety of human life, and the mystery of human death and longevity. These epoch-making discoveries suggest that there is a need and scope for complementary analysis and holistic interpretations to further expand our understanding of the illusive realities of life and nature.

I am not arguing in this paper that religion is becoming a dominant perspective in modern science. Majority of the working scientists are not fully aware of the changing nature of science and scientific epistemology. The positivist ideology is still the dominant perspective in scientific research. What I am suggesting is that within the epistemological boundary of postmodern science, there is growing a serious discourse for the evaluation of religion and spiritual knowledge for complementary and holistic interpretations, particularly in medicine, psychology, and

psychiatry. In modern medicine and psychology, we have enormous understanding of different empirical aspects of the mind, body, and consciousness, but we still need a holistic understanding of the principles that govern those realms to make the "everything" of a human being.

Religion and the Quest for Knowledge in Postmodern Medicine

Medicine is one of the earliest branches of knowledge and specialization, and religion is one of the oldest sources of medicine. In almost all great religions, there are texts and writings on medicine. (Ashley, 1985) The prophets and the sacred texts of all religions --Judaism, Christianity, Hinduism, Buddhism, and Islam -- deliberated on issues of health, disease, and well being (Desai, 1989; Rahman, 1987; Pellegrini, Langan, & Harvey, 1989; Vaux, 1984). As the Bible said: " My son, if you have an illness, do not neglect it, but pray it to the Lord, and He will heal you. Renounce your faults, amend your way, and cleanse your heart from all sin" (Vaux, 1984:120). In the Judeo-Christian tradition, there is a theological concern for sickness "which was highlighted by the biblical history of Jesus' caring for the sick" (Pellegrino, Langan, & Harvey, 1989: 131). Religion has been a source of knowledge in medicine, not only because of its rites and rituals for cure and healing, but also because of its central concerns with the sacredness of the body and the sanctity of life and death (Pelligrino &Thomasma, 1981; Steen & Thung, 1980).

For almost five thousand years, medicine and religion were epistemologically and institutionally linked. The advent of scientific medicine, however, started a process of delinking between medicine and religion. Scientific developments in physiology, anatomy, biology, and biochemistry in the nineteenth century laid the foundation of modern medicine. With further developments in molecular biology, genetics, and laser in the twentieth century, modern medicine has become scientifically one of the most advanced professional cultures.

The philosophy and the characteristics of modern medicine are based on the ideology of scientific positivism. Modern medicine, like physics, believes in demarcations, empiricism, quantification, observation, and experience. It believes in the need for rejecting the unseen and the unobservable. The subjective aspects of illness -- a patient's desire, thinking, behavior, fear, feeling, emotion, and love -- are deliberately avoided in scientific medicine.

The dominant medical model of disease "is biomedical with molecular biology as its basic scientific discipline. It assumes disease to be fully accounted for by deviations for the norm of measurable biological (somatic) variables. It leaves no room within its framework for the social, psychological, and behavioral dimensions of illness. The biomedical model not only requires that disease be dealt with as an entity independent of social behavior, it also demands that behavioral aberrations be explained on the basis of disordered somatic (biochemical or neuropsychological) process" (Engel, 1977:130). In view of the medical model, the human body is an autonomous functioning machine, apart from the mind and soul, with its own atomic, chemical, electrical, and

structural properties. A physician's knowledge and training is complete when he or she has learned about the body. Conventional medicine creates a sharp dualism between the mind and the body, and the body and the soul. For the last three hundred years, these remained the dominant themes in medical education, which are surprisingly similar not only in the West but also in all post-colonial countries and cultures.

In the context of our central problematic, the question is whether and to what extent is modern scientific medicine creating a legitimate epistemological space for the evaluation and understanding of religious knowledge about disease, health, and the human body? Is modern medicine becoming open for complementary and holistic analysis? The nature of modern medicine today is paradoxical. (Cassell & Seigler, 1979) On the one hand, it is increasingly becoming scientific, rational, and technocratic. On the other, there is a growing recognition in the role of subjectivism. My argument here is that these two processes in medicine are becoming mutually complementary. The increasing growth of science and technology is creating medicine's increasing interests in subjectivism – interests in the relevance of the unseen and unobservable facts of the mind and behavior, particularly the role of religion and spirituality. Religion is the realm of human subjectivity – the realm of the unobservable that create a relatively fixed trajectory of beliefs and a sense of the divine in the minds of an individual. It is this trajectory of spirituality that for many is the guiding frame of reference for the soul and salvation, and the organization of the mind and materiality. In modern medicine today, there is a growing trend of research to understand the scientific basis and the clinical values of this trajectory of human spirituality. This trend is not a new epistemological turn to move away from scientific medicine, but a new epistemological space within its domain to examine the scientific basis of spirituality for a more holistic analysis of health and healing.

From the beginning of the 1970s, many popular writings began to grow reflecting on the limitations of scientific medicine. These writings grew in the context of the New Age Movement, Transcendental Meditation, Alternative Medicine, Alternative life-styles, psychic healing, Eastern Medicine, and many other disparate sets of revolts against modern medicine in particular, and modernity in general. Around the 1990s, this trend of thought began to move from popular writings to professional medicine, when medical doctors began to empirically examine the relations between health, healing, and spirituality. The institution of professional medicine then gradually began to be more open for research and education in this area.

Major medical journals, both in the United States and Europe, such as the New England Journal of Medicine, Annals of Internal Medicine, Archives of Internal Medicine, American Journal of Medicine, American Journal of Public Health, Social Science and Medicine, British Medical Journal, and the Journal of the Royal Society of Medicine published hundreds of empirical and experimental studies in recent years on the problem of religion and spirituality. [Table 1] (Astin, Harkness, & Ernst, 2000; Daaleman, 2004; Dossey, 2000; Jonas and Crawford, 2003; Rosner

2001; Yawar, 2001). Most of those studies, using methods of clinical trials, controlled clinical trials, randomized controlled trials, and double-blind experiment, found strong correlations between spirituality and longevity, lower cancer rate, lower blood pressure, increased survival after cardiac surgery, overall health, and life satisfaction. (Astin, Harkness, & Ernst, 2000; Dossey 2000; Mueller, Pelvak, & Rummans, 2001; Testerman, 1997). In a major study of 232 open heart surgery patients, one group of medical researchers, for example, have found that "Those reporting no strength or comfort from faith had more than 3 times the risk of death as those with faith. Those reporting neither faith nor social support system had 10 times the risk of dying" (Testerman, 1997: 3; Oxman, Freeman, & Manheimer, 1995).

There is now growing a consensus within the scientific medicine that more serious studies and education are needed for a holistic understanding of the impact of prayer and spirituality on the nature and dynamics of human physiology, neurology, endocrinology, immune system, and the vortex of human Consciousness. As Dr. Redford Williams of the Duke University Medical Center says, "The mainstream cardiologists need to recognize what more and more studies are proving -- that a patient's social situation and mental mindset can make or break modern medical care. Given these findings, and with more than 500,000 people suffering heart attacks a year, it would be unethical, he says, not to start aggressively screening patients and treating those at risk with some sort of therapy." He believes that the existing "culture of cardiology" should be changed. (Benson, 1996)

A new paradigm, described as "distant healing", is now creating a widening community of researchers. (Austin, Harkness, & Ernest, 2000; Dossey, 1982; Dossey, 1989; Olshansky & Dossey, 2003) As one empirical study concludes: "Remote, retroactive intercessory prayer said for a group is associated with shorter duration of fever in patients with a bloodstream infection and should be considered for use in clinical practice" (Leibovici, 2001: 1). Distant healing is the reincarnation of the ancient notion of "pranic healing". "Prana" is a Sanskrit word that means a vital force of energy. The Hebrew and Islamic scriptures call this as "Ruah". The Japanese describe it as "Kid"; the Chinese word for "Prana" is "Chi", and the Greeks call it "Pneuma". (Jonas & Crawford, 2003).

Table 1: Selected Empirical Studies on

Medicine and Spirituality

Author /Year	**Research/Subject**	**Journal/ Publication**	**Findings**
H. Benson (1977)	Hypertension and Relaxation Response	New England Journal Medicine 296:1152-1156	Meditation is positively correlated with lower hypertension
E.T. Creagan (1997)	Attitudes and Cancer Survival Rates	Mayo Clinic Proceedings 72: 160-164	Long-term survivors have strong faith and social connectedness
H.G. Koenig, et al. (1988)	Religion and Well-Being	The Gerontologist 28:18-28	Positively Correlated, effects are greatest among women
H.G. Koenig, et al. (1997)	Religion and Immune Function	Intl. Journal of Psychiatry in Medicine 27:233-250	Religion is positively correlated with stable immune system
H.G. Koenig, et al. (1998)	Religion and Smoking	Journal of Gerontology 53 A: M426-M434	Smoking is lower in people with religiosity
H. G. Koenig, et al. (2000)	Religious Attendance and Survival Subjects: 3,968	Journal of Gerontology 54 A: M370-M376	Positively Correlated
H. G. Koenig (2002)	Religion and Congestive Heart Failure Subject: 196 Patients	Journal of Religion and Health 41: 263-278	Positively Correlated
K. L. Lapane, et al. (1997)	Religion and Cardiovascular Disease: A study of 5241 adults	Journal of Religion and Health 36:155-163	Religiosity is positively associated with lower risk of cardiovascular disease
D.B. Larson, et al. (1989)	Religion and Men's Blood Pressure	Journal of Religion and Health 28:265-278	Religiosity is positively correlated with low LBP
S. Levy, et al. (1987)	Stress and Natural Killer Cell Activity in Cancer Patients	Journal of Clinical Oncology 5:348-353	Stress reduces natural killer cell activities
W. Linden, et al. (1996)	Psychosocial Interventions and Coronary Artery Disease	Archives of Internal Medicine 156:745-752	Mortality is significantly lower with psychosocial interventions
T. E. Oxman, et al. (1995)	Religiosity and Recovery From Heart Surgery: A Study of 232 Patients	Psychosomatic Medicine 57:5-15	37 patients who were deeply religious did not die during the 6-month time
M.A Parsinger, et al (1984)	Neurological Basis of Beliefs	Perceptual and Motor Skills 58:963-975	Religiosity is positively associated with high temporal lobe activity

The National Institutes of Health [NIH], which is the nucleus for the production of scientific knowledge in health and medicine in America, has established, under a Congressional mandate, a National Center for Complementary and Alternative Medicine in the mid 1990s. The Center's Mind-Body Program is the core institutional locus for research on the science of transcendental meditation, imagery, spirituality and distant healing. The NIH's Complementary and Alternative Medicine Program [CAM] provides funds for the development religion and spirituality teaching and training within the medical curriculum.

One of the studies done at the Center for Spirituality and the Healing at the University of Minnesota in 2001, funded by the NIH's CAM Program, found that about 91 percent of their Medical School faculty and 88 percent of 4th year medical students believe that clinical care should integrate the best of conventional and CAM practices. About 92 percent of medical faculty and 94 percent of medical students believe that conventional medicine could benefit from ideas and methods of alternative and complementary medicine. About 86 percent of medical faculty and 81 percent of medical students recognized the need to include alternative and complementary medicine in their school's curriculum. (Kreitzer, 2001)

More than 50 university medical schools in the United States in recent years have integrated religion and spiritual teaching and training in their curriculum. The John Templeton Foundation is one of the major pioneers in this movement. In recent years, it has provided grants to more than thirty major medical schools including Johns Hopkins, Harvard, University of Pennsylvania, Brown University, University of Minnesota, Case Western Reserve University, and the University of California at Los Angeles.

Along with the growth of research and curriculum innovations, there is also growing a critical mass of highly qualified medical doctors who not only research, but also work as scholar-advocates for the increased presence of religion and spirituality in clinical medicine. The Duke Center for Spirituality, Theology, and Health in the United States is one of the leading world centers for the scientific study of religion in health and medicine. There is a group of medical doctors and health professionals in this Center who are at the forefront of this movement.

Medical doctors in clinical practice today are also being increasingly demanded by their Board of Examinations, and medical education and training accreditation agencies to make medical judgments in the context of "patient-centered" rather then "illness-centered" approach in medical practice. In the patient-centered approach, the understanding the patient's subjective trajectory of faith and beliefs and their relations with the conditions of patient's physiological trajectory is a basic task for the clinician. Thus the relations between religion and scientific medicine are entering into a new age of tolerance and understanding. (Koenig, 2001)

Religion and the Quest for Knowledge in Postmodern Psychiatry

Modern psychiatry is the hybrid creation of phrenology, physiology and psychology. Until the advent of modern science and its positivistic ideology, psychology was deeply interconnected with religion and spirituality. Socrates gave birth to secular philosophy, but he valued the understanding of the soul as a way of understanding humanity. The humanistic orientation of classical Greek philosophy "developed the notion of the spiritual soul that possess the unique capabilities of the intellect and the will. The soul was elaborated as the central element in the interpretation of life offered by Plato and Aristotle" (Brennan, 1994:26). The great medieval Christian scholar Thomas Aquinas said, "the human person is not simply a physical machine propelled by external stimuli or environmental pressures. Rather, the person is a dynamic entity, motivated internally by the soul" (Brennan, 1994:58).

Modern psychology and psychiatry emerged through the dethronement of the soul from the mind and human personality. The positivistic ideology in modern psychiatry has advanced the notion that the mind as an autonomous region with its inner working rules and principles, and they are observable and empirically understandable. The central point of theorizing in psychology during the last one hundred years of its growth has been the understanding of the structure and organization of the mind, and the internal processes, which govern its functions and activities. In this quest for understanding the mind, reference to religion and spirituality, except in the Jungian psychology, has been deliberately avoided.

German psychologist Wilhelm Wundt [1832-1920], who was trained primarily in physiology, is commonly described as the father of contemporary scientific and positivist psychology. Wundt's structural positivism was based on the assumption that "psychology must be kept free of the forces of metaphysics, common sense, and utilitarian or applied interests, which would destroy its integrity" (Brennan, 1994:169). He theorized that there are certain identifiable structures of the mind, and their functions and expressions are mediated by the brain and neurochemistry. Wundt's positivist psychology was a marriage between psychology and biology. It "was the outgrowth of studies of sensory physiology and psychophysics" (Brennan, 1994: 182).

In United States, the positivist psychology was imported from Germany in the late nineteenth century through the writings of William James [1842-1910]. William James, who studied medicine at Harvard, published his *The Principles of Psychology* in 1890. James's psychology combined American pragmatism and German positivism. He enlarged the scope of Wundt's positivist psychology and developed the notion of physiological psychology "that stressed brain in accounting for mental experience, or consciousness". For James, the task of psychology was to observe, measure, and conceptualize the streams of human consciousness rooted in biochemistry.

Modern psychology and psychiatry came to a new turning point with the arrival of Freud's psychoanalysis in the early part of the twentieth century. Freud [1856-1939] theorized that the

mind is governed primarily by the unconscious. The unconscious is a region, governed in turn, by the blind forces of Eros. Neurosis is the result of sexual repressions dictated by culture. Religion is an illusion created by the sublimation of repressed instinctual desires. And the organized monotheistic religions of Judaism, Christianity, and Islam are the symbols of collective neurosis. In his last work, *Moses and Monotheism* (1939), Freud wrote that religion is not a cure but a disease of the mind created by the development of culture and civilization. Freud, who claimed himself a "godless Jew" (Gay, 1989: 685), said in his *The Future of An Illusion* that religion is the product of our inability to cope with the control of civilization on the one hand, and the control of the passions for instinctual gratifications on the other. "In the same way, a man makes the forces of nature not simply into persons with whom he can associate as he would as his equals – but he gives them the character of a father. He turns then into gods " (Gay, 1989:695). But Freud did not see the scientific basis of religion as a phenomenological reality – the role of that constructed reality of god as a father. The science of psychiatry based on psychoanalysis draws a sharp boundary between science and religion. (Fromn, 1950) Traditionally, psychoanalysis does not pay much attention to the role of distant human illusions about heaven and hell, and the anxiety of the soul for salvation – the illusions that might play a critical role in dealing with the storms and turbulent of the human mind.

From the 1920s to the 1970s, for almost half a century, American psychology was dominated, along with psychoanalysis, by the paradigm of behaviorism. Behaviorism, developed by John Watson [1878-1959] on the basis of the theories of classical conditioning, left no scope for studying human subjectivity. For the behaviorists, the task of psychology is not contemplation for the unseen and unobservable forces of human behavior. The mind and the soul are not real because they are not empirically observable. The task of psychology is the discovery of the laws that govern the observable and overt human behavior. B.F. Skinner, who emerged as a dominant figure in behavioral psychology in the 1960s and 1970s, described human organism as a behaving system that follows some observable "uniformities or lawful relations" (Skinner, 1953:15). Human behavior can be understood, regulated, and predicted. The task of psychology, for Skinner, is to observe and measure the impact of positive and negative reinforcements on behavior. Everything else that cannot be seen and measured is not real. "Many people interested in human behavior do not feel the need for the standards of proof characteristics of exact science; the uniformities in behavior are "obvious" without them. But these idiosyncrasies are a costly luxury" (Skinner, 1953:16).

While behaviorism was dominating psychology in the 1970s, psychiatry became deeply entrenched into medicine and physiology. From the 1970s, medicalization emerged as a dominant paradigm in psychiatry and mental health. New discoveries in physiology, molecular biology, neurology, endocrinology, genetics, and pharmacology made medicalization a major perspective in the study of mind and mental health. There emerged a pervasive belief in

psychiatry and mental health practitioners that mental health is largely a biological problem, and therapies should be based on medical and pharmacological interventions. (National Advisory Mental Health Council, 1995) The recent directions in the psycho-biological theories of addiction, violence, and aggression, and recent explosion in the use of various antipsychotic drugs clearly shows this trend of the growth of medicalization in modern psychiatry (Goodwin 1994; Franklin, 1994). One of the studies done from the Office of Research, American Psychiatric Association (Pincas, Henderson, and Blackwood, & Dial, 1993) reviewed the trends of research in 1,236 articles published in two major psychiatric journals in 1969-1990 - American Journal of Psychiatry and Archives of General Psychiatry. The authors found that most of the research was dominated by biology and psychobiology. Freedheim, 1992)

However, from around the same time of the dominance of medicalization, we can also detect and discover the growth of a postmodern concern for subjectivism in contemporary psychology and psychiatry (Jones, 1994; Kimble, 1994; McWhirter, 1989; Nicholas, 1994; Worthington, 1989). In the 1990s, the perspective of medicalization and positivist psychiatry came under serious attacks. As Dan Blazer, a psychiatrist at the Duke University Medical Hospital said, "I believe there is a real vacuum in academic psychiatry. Mainstream psychiatry is missing something. Religious longing, craving is missing. We are a people of the spirit. Psychiatry has become mechanistic. There is no longer a philosophy in psychiatry" (Boyd, 1994:45-46). In the same tune, David Larson, who was once a psychiatrist at the National Institute of Mental Health (NIMH), claimed that the spiritual dimension is almost totally ignored by the mental health field. "Therapists often have unresolved feelings about religion or religious issues. When I present research data about religion to a mental health audience, I point out that the data are asymmetrical. About 75% to 80% of the time religion is beneficial to health. Mental health audiences react with surprise. They are stunned" (Boyd, 1994:69-79).

The last two decades have seen the growth of enormous amount empirical studies in psychiatry on the role of religion and spirituality in mental health both in the United States and Europe (Blass, 2001; Breakey, 2001; Koening, 2001; Plante & Sherman, 2001). One study analyzed 1200 studies and 400 research reviews on relations between psychiatry and religion, and found that most studies discovered positive correlations between spirituality and the status of mental health. (Koenig & Larson, 2001). Major scientific journals of psychiatry and psychology, such as the American Journal of Psychiatry, Canadian Journal of Psychiatry, Canadian Psychology, British Journal of Psychiatry, British Journal Of Psychology, International Review of Psychiatry, Advances in Psychiatric Treatment, Psychological Medicine, Acta Psychiatrica Scandinavica, American Psychologist, American Journal of Psychotherapy, Journal of Humanistic Psychology, Journal of Cross-Cultural Psychology, Journal for the Scientific Study of Religion, and the International Journal for the Psychology of Religion, now publish scientific research on relations between religion and psychiatry. [Table 2] The Committee on Psychiatry and Religion of

the American Psychiatric Association, the Division of Psychology of Religion of the American Psychological Association, Association of Transpersonal Psychology and many other groups and organizations today conduct serious scientific discourses on the role of religion in mental health.

Religion has been recently described by the American Psychological Association as a scientifically legitimate problem for discussion by the counseling psychologists. Research on recent developments in counseling psychology shows that there has been a major growth in the interest on religion and spiritual questions in counseling (Bloch & Chodoff, 1991; Janov, 1991). One recent study finds that the majority of psychologists sampled perceived spirituality (but not necessarily institutionalized religion) to be relevant both personally and professionally. They also believe that the therapist's personal stance toward spirituality influence the outcome of therapy, particularly with those patients who are more religious and spiritual in their behavior and worldview (Hendlin, 1989).

The American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders [DSM–IV, 1994], which represents a barometer of cultural change in the profession of psychiatry, included a new entry on religious or spiritual problems for first time the time in its existence for half a century. The clinicians are now asked to investigate the client's cultural and religious frames of reference – their subjective trajectories of life. "A clinician who is unfamiliar with the nuances of an individual's cultural frame of reference may incorrectly judge psychopathology, those normal variations in behavior, belief, or experience that are particular to the individual's culture. For example, certain religious practices or beliefs" (DSM-IV, 1974:XXIV). The Manual describes, "This category [V62-89] can be used when the focus of clinical attention is a religious or spiritual problem. Examples include distressing experiences that involve loss or questioning of faith, problems associated with conversion to a new faith, or questioning of other spiritual values which may not necessarily be related to an organized church or religious institution" (DSM-IV, 1994: 685).

One of the other examples of this trend of growing scientific interest in human subjectivity is the revival of the Jungian approach to psychotherapy (Aziz, 1990). For a long time, Jungian psychology was not taught at major universities and training programs. Jung's work was intentionally and deliberately ignored because he broke away from Freudian psychoanalysis, and his theorizing of psychology in terms of religion and spirituality did not fit into the positivistic mode of psychotherapy. In his "Psychology and Religion" published in 1937, Jung developed a theory of the relevance of religion in psychology.

Table2: Selected Empirical Studies on Relations Between Psychology and Spirituality

Author/Year	Subject and Research	Publication	Findings
D. Bienenfeld, et al. (1997).	Psychosocial Predictors of Mental Health in Elderly Women	Journal of Geriatric Psychiatry 5: 43-53	Religious commitment is strongly correlated with mastery on mental health
J.K. Cochran, et al. (1999	Religion and Non-Marital Sexuality	Journal of the Scientific Study of Religion 30: 45-62	Religiosity is inversely related to attitudes toward sex
K.S. Kendler, et al. (1997)	Religion and the Psychopathology of Substance Abuse	American Journal of Psychiatry 154: 322-329	Personal devotion and religion reduces substance abuse
H.G. Koenig, et al. (1992)	Religious Coping and Depression	American Journal of Psychiatry 149:1693-1700	Religious coping is inversely related to Geriatric Depression Scale
H.G. Koenig, et al. (1993)	Religion and Anxiety	Journal of Anxiety Disorders 7:321-342	Religious people are less likely to have anxiety disorders
H.G. Koenig, et al. (1994}	Religion and Alcoholism	Hospital and Community Psychiatry 45:225-231	Religious people are less likely to have alcoholism
H.G. Koenig, et al. (1998)	Religion and Recovery From Depression	American Journal of Psychiatry 155: 536-542	Patients with high religiosity scores experienced faster recovery
H.G. Koenig, et al. (1998)	Religious Coping in Elderly Patients	International Journal of Psychiatry in Medicine 27: 365-376	Religion is related to greater cognitive functioning
J. Neeleman, et al. (1993)	Religion and the Psychiatrists	Acta Psychiatrica Scandinavia 88: 420-424	92% believe that religion and mental illness are connected
G.B. Parker, et al (1982)	Religion and Coping Behavior	Archives of General Psychiatry 39: 1386-1391	56% indicated that prayer was effective; 41% would increase prayer
S. Pfeifer, et al. (1995).	Psychopathology and Religious Commitment	Psychopathology 28: 70-77	Religion provides comfort, meaning and hope to patients with mental disorders
M.R.Trimble, et al. (1997)	Neuropsychiatric Symptoms from the Temporal Limbic Lobes	Journal of Neuropsychiatry and Clinical Neurosciences, 9: 429-438	Religiosity and temporal lobe activities are connected

Jung came to his theory of religion through his theory of truth. Truth, Jung claimed, is a fact and not a judgment. If a woman believes that there are angels, it is a psychological truth to that woman. It does not matter whether there are angels or not.

Jung was skeptical about the Freudian notion that our unconscious region is a region of unmet sexual cravings. For Jung, who was deeply curious about human mythology, the unconscious region of the mind is the store of human beliefs and mythology. For Freud, religion

was an illusion, and for Jung, it was a genuine psychological phenomenon worthy of serious scientific investigation. Jungian psychology is that it is not just "aggression and sex but the need for meaning (spirit) that propels us as individuals." Jung's cravings for the scientific understanding of human subjectivity cost his friendship with Freud (Donn, 1988), but now, after almost a century, he is recognized as one of the classical founders of postmodern psychology.

Conclusions: Science, Religion, and Postmodernism

The advent of modernity has brought a radical break from the past five thousand years of human knowledge and experience. One of the most radical disjunctions was between the sacred and the secular, and this was achieved by the triumph of modern science. Modern science did not abolish religion, but made it epistemologically irrelevant. The modern liberal secular society did not abandon religion, but made it politically irrelevant. For the last two hundred years, science was dominated by the ideology of positivism. Within the philosophical and methodological framework of positivism, there was no epistemologically legitimate scope for the study of human spirituality and subjectivism.

But today's new science challenges the basic assumptions of positivism. No serious philosopher of science today believes that positivism depicts the true nature of science. The theoretical progress in science, particularly in quantum physics, particle physics, new astronomy, and new biology created a new meaning of scienc, and that turned the old dichotomy between object and subject up side down. In the post-positivist conception, the study of human subjectivity is a legitimate scientific inquiry.

The post-positivist turn in science, however, came in the wake of the rise of postmodern discourses in general. (Smart, 1992;Touraine,1995). Postmodern discourses are discourses essentially of the relevance of human subjectivity in the production of human knowledge and actions. (Gilbert, 1997) Postmodern discourses are also a discourse of chaos, uncertainty, fragmental reality, deconstruction, power and domination, and the essentiality of holistic analysis. The postmodern human conditions are characterized by remarkable economic growth, and the expansion of consumerism and advanced technology for most of western societies. But postmodern conditions are also characterized by crisis in human relations, mind, and mentality. In no stage of human progress, so many millions of people remained continuously depressed and medicated with anti-depressant of different kinds as they are in modern societies. In no stage of human progress, so many millions of families were devoid of the depth of love and connections as they are in postmodern societies. Medical experts believe that 60 to 90 percent of all doctors visits involve stress related complaints" {Benson, Corliss, & Cowley, 2004:46). One government survey shows that "nearly half of all Americans used mind-body interventions in 2002" (Benson, Corliss, & Cowley, 2004: 46; Dubovsky, 1997). These interventions include meditation, deep relaxation techniques, and deep breathing techniques, hypnosis, and guided imagery. "Close to

half of them also said they prayed – perhaps the oldest and most basic form of mind-body medicine" (Benson, Corliss, & Cowley, 2004: 46).

The growing problems of depression, suicide, violence, aggression, and loneliness in modern societies created a vast crisis of analysis for science, particularly for human sciences. (Gilbert, 1997). It is this crisis of analysis that led to the growth of an epistemological space in modern science for the study of human subjectivity. (Wallis, 1996) But it is also related to the growth of postmodern social discourses and postmodern culture. The rise of post-positivist science made the study of human subjectivity epistemologically relevant. The rise of postmodern culture made it a part of postmodern discourses.

The classical sociological predictions about modernity, particularly those of Durkheim and Weber, who theorized about the role of human subjectivity and the need for its scientific understanding, remained surprisingly close to postmodern discourses. (Turner, 1991) Modern science in fact is struggling with the Durkhiemian paradox. Durham theorized that God did not create humans. Humans created God for their own needs to reason chaos, crisis, and uncertainty. Postmodern science and discourses are trying to make a sense of one of the greatest discoveries of humanity - the discovery of God. The English poet Thomas Hardy once imagined himself attending "God's funeral" (Wilson, 1999) in the context of modernity and the Enlightenment. But God has reincarnated in discourses on postmodern science and culture. In contemporary postmodern discourses, we see growing relations between science and religion for a more complementary and holistic analysis of the mysteries of the human body, mind, soul, and subjectivity.

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