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Contents

The Bioethics Society is a relatively new organization at Rutgers and yet the issues themselves seem age old. Our mission is to bring these topics to the forefront of discussion in an attempt to reflect, question, and deeply analyze the links between humanity and science. The club's mission is to be a forum where students learn and are informed through philosophically complex discussions, field trips, presentations, lectures, and personal experiences.

The two aspects of the club, a social organization and an academic journal, are united in their aim to raise awareness by thinking through ethical dilemmas facing our culture today. Recent topics include genetic patenting, physician assisted suicide, and the marketing of human organs. In spring 2011, we participated in the National Undergraduate Bioethics Conference at Duke University. Last fall, we screened several documentaries that expose the controversy of medicating children with psychological disorders, legalizing marijuana in the US, and the potential to blur lines between man and machine. We also branched out by co-sponsoring a debate with the Pharmacy fraternity Phi Delta Chi and discussing the "War on Drugs" and medicinal marijuana with the Students for Sensible Drug Policy. In addition, we held bake sales aiding tsunami relief for Japan, organized a blood drive, and participated in an event promoting safer Halloween fun for the children of New Brunswick called "Monster Mash."

This past semester, the Bioethics Society visited the Mütter Museum of Medical Anomalies in Philadelphia. The historical documentation of diseases, disfigurements, and medical practices allowed us to both appreciate and reflect on medical decisions of the past. The museum was built to record illustrations and artifacts used by the College of Physicians of Philadelphia and it is there that the autopsy for the original "Siamese Twins", Chang and Eng, was performed. The museum opened for the public in 1863, during the Victorian Era: a period of medical breakthrough, from Louis Pasteur's Germ Theory to the evolution of general anesthesia. As we browsed through the collections, we were able to see firsthand the magnitude of medical progress since the days of lobotomies and phlebotomies. Although this time period is also known for strange and terrifying medical practices brought about by the guesswork of innovative physicians of the time, it helps us trace a genealogy to today's advancement in modern medicine, education, and technology.

Sincerely,

Spruha Magodia

President of the Rutgers Bioethics Society

Major: *French Literature* Minor*: Biological Sciences*

Readers of the *Rutgers Journal of Bioethics*,

Together we approach the crest of 2012: a year marked with urgency in debates between religion and science. Much like discussions oriented toward bioethics, academic disciplines are coming together to partake in scholarship concerned with how ethics and morality are involved in inciting natural phenomena of epic proportion. While some camps argue 2012 will mean a flip of magnetic fields or a shift in the axis of the earth's rotation, many cannot detach from Mayan astrology, Nostradamus-like prophecies, or apocalyptic convictions underlining their theories. It is not simply at this moment, however, that we approach medicine, technology, and the environment with a kind of theological reverence. The Rutgers Journal of Bioethics looks at many historical perspectives reflecting how important it has been for scientific and humanistic pursuits to consort. With the publication of our third volume, we hope to highlight bioethics as an interdisciplinary space grappling with controversial, timely, and relevant topics by bringing questions of current practices to light through past praxes and beliefs.

In this issue, the themes of the articles vary widely. The parody of Rembrandt's The Anatomy Lesson of Dr. Nicolaes Tulp on the front cover, however, serves to unify an interest in turning back to bioethical dilemmas of the past to reconfigure our approaches to the present. From residual medieval stigmas tied to Leprosy to the theological distinctions between martyrdom and suicide, this journal aims to complicate the relationship between what some would call "science vs. superstitution" by seeing what profound insights arise when found in the same arena. Our authors write about the flaws of medical specialization, new policies promoting biofuels in Brazil, and ways to restructure psychological questionaires in order to critique a mode or system that undoubtedly would benefit from an interdisciplinary analytical perspective. Thus, we introduce this text with a kind of excitement about the possibilities open to us when we think about bioethics through the lens of multiple fields of study.

I would like to thank our thought-provoking faculty advisers, dedicated associate editors, and brilliant staff for bringing this multi-dimensional program into focus. A special thanks to our hardworking and meticulous layout and graphics team. I also want to acknowledge our front cover artist, Betsy Peterschmidt, for sharing her incredible talent with us. I am indebted to our most loyal supporter and publisher, Michael Asslett, who has worked with us side-by-side since our first issue. And of course, I would like to thank the Rutgers Undergraduate Bioethics society – a group of enthusiastic and courageous thinkers that operate as the backbone of this project every year. With all credit given, I present to our readership the third volume of the Rutgers Journal of Bioethics!

Sincerely,

Maryann D. Murtagh

Editor-in-Chief

Majors: *Philosophy, English*

Acknowledements

We would like to acknowledge the following Rutgers University organizations for sponsoring the Rutgers Journal of Bioethics.

Editorial Staff and Credits

Our Mission Statement:

As members of Bioethics Society of Rutgers University, we hope to raise general awareness of issues in bioethics in the Rutgers community by method of discussion and publications written by its members. Although the beliefs and opinions regarding bioethical issues of this group are not unanimous, we are united by our ardent belief that the student population at Rutgers should be made aware of the implications of biological research, medicine, and other topics of bioethical controversy. This orginization serves the general Rutgers population by introducing a forum where students can discuss and debate issues of bioethics, as well as educating the general student body.

Ethics and Specialization in the American Medical Profession

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Abstract:

Trends in the profession of medical doctors have progressively placed less emphasis on primary care and general practice and more emphasis on specialization. This issue is often framed as a mostly practical or structural problem requiring policy responses or institutional changes. Disparities between incomes of general practitioners and specialists are often blamed for the rise of specialization as well. However, I argue that this trend is instead a reflection of the ethical values central to the profession and thus requires a response appropriate to those moral or ethical issues. Because primary care is central to effective healthcare and also the foremost way of addressing the most pressing health needs of America --such as diabetes, obesity, hypertension and heart disease, etc.,-- medical doctors have a professional and moral obligation to make these necessary ethical changes. Institutions and social structures reflect the *values* and moral priorities of a profession. Therefore a change in these values (or their prioritization) will lead to improvements in medical *practice*.

The values-first approach to addressing the problems of specialization depends significantly on the profession recognizing that diminished primary care is a problem. Action can then be taken to reemphasize the merits of general medicine. Most importantly, medical education should take steps to imbue these moral values into its students at the outset of their healthcare careers.

The current climate of the medical profession is increasingly oriented toward specialization of expertise. Put simply: knowing a whole lot about very little. With this growing emphasis on specialization, there is also a corresponding decreasing trend in the number of general practitioners and family doctors coming out of medical schools. This is exemplified in the way less than 50% of medical students in America have gone into primary care between 1997 and 2010.[1] This trend is often attributed to the higher incomes of specialists, as the income gap between primary care and specialty care is well documented.[2] However, this reason alone is insufficient in fully explaining the profession's flight from primary care. Reimbursement rates are not arbitrarily set, but instead reflect the monetary values assigned to services and care within the healthcare professions. Thus, high rates of reimbursement for specialty care reflect changes in professional values that underlie various facets of healthcare effecting monetary values.

Improved patient outcomes from more knowledgeable physicians are often cited to justify specialized care in medicine. A study associated with the World Health Organization, however, has shown that "the strength of a country's primary care system is associated with reduced mortality, lower costs, higher patient satisfaction, and comparable quality of patient outcomes" to more specialized health systems.[3] Considering the positive impact of effective primary care in addition to

the benefits of strong doctor-patient relationships, there should be no reason why the medical profession should be moving away from the ideal of societal health--health for all persons--and person-centered care. Increase in specialization and subsequent decrease in primary care reflect major changes in the professional values of medicine. Because this shift can cause harmful repercussions, solutions must address underlying ethical values. These values must be instilled and enforced largely through the social systems of the profession in order to reaffirm the ideal care for patients and populations. Implicit in this statement is that a values-first reemphasis on primary care must come from within the profession by doctors themselves rather than, or prior to, policy changes from outside institutions. Failure to do so may have dire consequences for the health of the American public, and could spell the proliferation of previously subordinated healthcare professions like nurse practitioners, physicians' assistants, and physical therapists.

Specialization in medicine is, in itself, not a recent development. There were specialists as early as the 1870s, and institutional recognition and regulation of specialization began when ophthalmology gained board recognition in 1917, followed by otolaryngology in 1924, and obstetrics and gynecology, dermatology, psychiatry, and internal medicine among the wave in the 1930s.[4] Because specialization has been a part of medicine for so long, we must examine the changes and evolutions brought through time that may explain why specialties are beginning to so quickly outpace general practice. In order to consider possible causes behind this shift toward specialization and away from general medicine, let us turn to the professional ethical values that have been reinforced through specialization.

First, it is important to expand on the notion of *values* used throughout the present study. The notion espoused is much like that of *Central Practice Values* articulated by David T. Ozar. The Central Practice Values of a profession are the limited set of core ethical or moral values that a given profession focuses on securing for its clients. These values are also given hierarchical priority in the form of ranking. Thus, certain values may outrank or "take a front seat" to others. Additionally, these values are the result of an ongoing dialogue between the profession and the larger community.[5] For Ozar, the extension of biological life through the cure of life-threatening illness or through life-extending therapy and patient autonomy are at the top of the Central Practice Values for American medicine in a "tie," with the restoration of normal physiological functioning and preservation of functions

related to activities of daily living ranked third and fourth, respectively. Contextual factors are to be weighed in breaking the tie in any given clinical decision where autonomy and life-extension may be in conflict. The present study uses the framework of Central Practice Values to elaborate on some ethical values that may lie in the shadows of such dominant values enumerated by Ozar.

The first ethical value emphasizing increase in specialization is derived from a regard of medicine as a *scientific* endeavor. It stems from a quest for fairly definitive knowledge that science champions. Having occurred early in the 20th century, the great marriage of scientific study with the craft of doctoring the ill is, at present, not far removed from its honeymoon phase. With the adoption of science into its knowledge base and education, the medical profession has embraced more than just the laboratory's white lab coats. It has imbibed aspects of its moral mindset as well. Science is largely devoted to the belief that the natural world has laws that can be uncovered through the scientific method, and that with the proper instruments for observation, a certain amount of time, and strength of evidence, those laws can be known with near certitude.

The adoption of this scientific attitude has manifested in a professional value for this mindset. That is, such scientific knowledge-seeking is considered a valorized aspect of much of the profession. With new professional emphasis, there also comes changes in the behavior and attitude that are rewarded in medical education and practice, which tend to favor the more scientifically-inclined students and physicans. Fields of specialization offer even more opportunities for such scientific orientation. The specialized physician has the opportunity to achieve an immense amount of understanding and expertise for one specific area of human anatomy and treatment, and to focus on the facets of that one area—much like an academic scientist does in research. The possibility of the law-like certitude sought in science is considerably greater in specialization than in general medicine. Thus the professional values of scientific inquiry fosters the demand for specialization.

To be clear, it is not my intent to sound entirely critical of the scientific aspects of contemporary medicine. Instead, I wish merely to challenge the ways science may have altered the central ethical values of the profession and how those values are now manifested in patient care and general medical practice. What seems most dangerous is the adoption of *scientism* in medicine:, i.e. the belief that science is the only important element of the practice of medicine. Clearly science has been an invaluable addition to medicine, but

it should not overpower all other aspects of medical practice—particularly when detrimental to patient outcomes or to the health of the larger community.

Intense focus on natural science in medical education might not even be necessary of care for rare and complex acute illnesses. While speaking of the rationalization of intense scientific training in medical education, one practitioner notes: "This sensible rationale ignored the realities that, first, it is not at all necessary to understand metabolic pathways in order to prescribe successfully; and second, most doctors forget this information anyway after they leave medical school."[6] Thus, the value assigned to scientific knowledge in the medical profession may be misguided compared to the goals of general medicine, which addresses the healthcare of much larger numbers of the population. If medical curricula had emphasized such professional ethical responsibilities and imperatives, perhaps more of a physician's education would "bear fruit" in their years after medical school instead of withering like much of their scientific coursework.

One practical result of this scientific ethic is that the notion of the *patient-as-person* can get lost in how the patient is considered and treated. *Patient-as-person* refers to comprehensive, holistic approaches to patient care. Some examples are the consideration of dignity and personhood alongside biological health and the recognition of emotional suffering, in addition to physical pain. In a scientific framework of medicine, however, patients need not be considered on this human level. Instead, they may be regarded as mere objects of an arena for observation to be addressed semi-experimentally by prevailing hypotheses of treatment. Specialties, often particularly scientific in values and exceedingly magnified upon one area of anatomy and physiology, are more likely to lack this notion of the patient-as-person. This attitude is often reflected in the bedside manner of specialists versus generalists, where the specialist may seem aloof and impersonal toward the patient—who very much wants his or her personhood reaffirmed in the isolating and often undignified time of illness.

Related to this scientific mindset is the ethical value given to "mastery" in medicine. While the quest for knowledge relates to the diagnosis and understanding of anatomy and physiology, the quest for mastery relates to treatment. It seeks to defeat disease with treatments or cures in order to achieve mastery and control over the body. Using this model, a treatment is more significance if it cures an illness, and a doctor receives more professional recognition for providing that treatment. However, many illnesses are

such that they cannot be immediately known nor mastered. Because of this, general practice is full of uncertainty. Meanwhile, students undergoing professionalization in medical school—learning professional moral values in addition to practical knowledge—are turned away from general practice and its uncertainties in light of this value for mastery. The resulting undesirability of uncertainty among the profession also leaves conditions and diseases that cannot be "mastered" to be poorly addressed by medicine. Such areas include old age and geriatrics, chronic illnesses, and disabilities.

One final set of values has strengthened the embrace of specialization among the American medical profession -- the adoption of capitalism in the professional moral framework. Speaking in 1906, Dr. John L. Hildreth (1989) compared the (already ongoing) specialization in medicine to the industrialized capitalist models of production.[7] Where the individual watchmaker is replaced by a series of providers that produce watch parts with machines to be assembled later by a series of hands, so too, Hildreth says, is the generalist supplanted by a series of specialists in medicine.[8] Just as the push for higher efficiency drives the division of labor in industry, so too does the push for better health outcomes bring about the specialization of medicine. However, this division of expertise produces similar drawbacks in both fields. Just as the producers of watch parts and machine operators need no skills or knowledge of watchmaking to actually craft watches spe-

cialists also require no skills or knowledge for treating entire persons holistically to do their job sufficiently. Again, the *patient-as-person* is lost. While the product of divided labor is significantly cheaper, the product is often of lower quality value—so too is the care provided through specialization a *different quality* from that of general medicine. There are a couple significant points of departure in this analogy, however: 1) A watch has no dignity, emotion, or sense of self, and 2) rather than getting any cheaper, care has become more expensive in America with the division of expertise through specialization.

Implicating another capitalist force behind specialization in medicine, Dr. Hildreth supposes that the increase in specialists may be a response to public demand.[9] Taking up such a capitalist value to meet the demands of the public (or, dare I say, consumers) is a risky venture for any profession—and especially for medicine. If meeting demands is the ethical justification for increased specialization, then medicine is submitting to a market model, and as a consequence, is subject to the litany of criticism that any market faces. The medical profession does indeed have responsibilities to provide for the needs of the public from whom they are given a monopoly of power. However, public demands should not drive professional services to the extent that they do markets. It is thus necessary to draw distinctions between meeting public "demands" and the blind influences of consumerist market dynamics of supply and demand.

Public demands must be tempered with the expert judgment of the profession—and more importantly they must be subject to moral judgment according to a set of professional values. When doctors act as moral agents, they act on their core values even if the desires of the public do not align. However, this is not to say that core values should not be scrutinized or re-examined when contrasted with public demand. Sometimes, calls from the public should lead to the changing or restructuring of ethical values within the profession[1]. Indeed, it is a necessary component of a profession's ongoing dialogue with society.

As a final note on capitalist values behind specialization, the monetary motivation often cited to describe why so many young doctors choose to specialize is not a commonsense justification and certainly not the end of the discussion. Instead, it is a problematic reflection on the ethical priori-

[1] Clearly this is a sticky area: weighing the values of a profession with the values of a society while factoring in professional obligations to society as the source of professional social power. However, I will elaborate later on the needs of the public that require an obligated professional response.

ties of the profession—and particularly for those in medical school. While doctors should not be expected to be selfless, disinterested in money, or to take an oath to poverty like many clergy, the desire for a sizable financial income ought not outrank moral commitments to the most effective and beneficial care for patients and populations. The suggestion that more students choose to specialize for the money seems to indicate that medical students are not imbibing the ethical responsibilities to service and public health that should be central to medicine as a profession, and thus should be internalized during professionalization[2]. Addressing the threat of "commercialism" in medicine, Dr. Hildreth appeals directly to the lasting ethics of the profession to not overlook the merits of primary care when he says:

> ***This is a noble profession to which we belong. Richer than any heritage of birth is that which falls to us as suc cessors of the courageous and self-forgetful practitioners of the past. The nobility of this heritage imposes upon us a corresponding obligation. We can not be, we ought not to be like men without such a heritage.[10]***

Such should be the commitment to professional values that is learned simultaneously with medical knowledge in the course of medical education in America. This sort of commitment and honor for the service aspects of medicine must not be forgotten or discounted in American medical values.

By failing to instill such values in many of its professionalizing students, medicine has brought about changes in the ways that those values are embodied in the practices and institutions of American medicine. Nonetheless, bioethicist Mark Kuczewski in personal correspondence notes that the number of general practitioners coming out of medical schools are still above what market-like incentives might suggest. Still, the extent to which the American medical profession is capable of shaping such incentives must not be overlooked. Addressing the needs for primary care will require reprioritizing and reaffirming certain central professional values of medicine in order to bring about changes in the social structures that reflect them. Indeed, the crisis of primary care requires a response in *ethics* to bring about more tangible, institutionalized changes. Despite pri-

[2] And while many cite the enormity of medical school costs and student loans behind the pursuit of dollar signs among new doctors, this phenomenon is not unique to medical students. Indeed all fields are undergoing rising education requirements while tuition costs are simultaneously increasing. Nearly all students graduating from higher education have sizable debts—and these are likely comparable to those of medical students *when considering the average income of their prospective fields in proportion to their debts accrued in education*. Some empirical data on this matter would be intriguing, though somewhat tangential to the present study.

mary care being deincentivized at present, the continued commitment of young doctors that Kuczewski notes is an encouraging sign for the future if such an ethical response is undertaken.

The foremost need for the medical profession is to recognize the fall of general practice as a problem—and more importantly as a *moral* problem. The skills and services of general practitioners have been noted as vital to the success of community and societal health.[11] While the scientific advancement of medicine has made major strides in acute illness, more lives have been extended and improved historically through broader health initiatives that emphasize primary health care. Our current health environment is no different; the health problems that face America are ones best addressed by primary care.

The American medical profession must recognize the need to give ethical priority to the inherent values of general practice in order to improve the lives of the population. As physicians Paul Rockey and Daniel Winship assert: "Just as we learn to diagnose disease and develop treatment plans for individual patients, we must also learn to diagnose and treat problems in the systems."[12] Physicians must recognize that the slide away from general practice is a slide away from the health of the nation. A reaffirmation of values is necessary to promote health and relieve suffering and a reformulation of healthcare structures must follow from this change.

One such institutional change that must come in medicine is in the realm of financial reimbursement structures. Greater *moral* value must be assigned to the merits of general practice, which treats patients-as-persons, families, and communities. As a result of the mastery model, monetary values follow an ethic of tangible accomplishment. For example, even if the net health benefits to a patient were the same, a fifteen-minute procedure is reimbursed at a higher rate than a fifteen-minute consultation for health management. The crucial difference is that the procedure is an instance of mastery through specialization- a tangible accomplishment of limited scope. If more professional moral weight is assigned to the holistic benefits that patients gain through primary care, then financial reimbursement would follow suit. This is because the monetary amounts assigned to procedures that are standard for reimbursement are assigned by physicians. Indeed, Medicare's influential Relative Value Scale assignments come largely from interviews and surveys of physicians regarding the "intensity" of procedures or services.[13] The income gap between primary and specialist physicians is made worse by private insurance, which reimburses specialty proce

dures at even higher levels than the already slanted Medicare Relative Value Units.[14] Thus it seems the professional *theoretical* value for a service is likely to correspond greatly to the *monetary* value eventually assigned to it based on the views of physicians.

The most sweeping changes and likely the most effective reformulations of professional medical values will lie in medical education through professionalization. This is the process by which novice students internalize the professional ethical values of medicine. Logically, the best way to reform the values of the profession is to begin at the point when those values are internalized. The de-emphasis of general care has been noted in the education structures of medical schools, as Rockey and Winship note: "A medical student who is attracted to the challenge of treating undiagnosed and undifferentiated illness at the front doors of medicine (as a family physician or general internist) is often told he or she is 'too bright' to enter primary care."[15] This is a *structural* manifestation of the de-emphasis of primary care in the *central ethical values* of medicine. The interest for doctors to treat the variety of illnesses families face while embedded within a community should be fostered in medical education. This is in direct response to a public demand for community-based primary care that is needed to improve health and quality of life among the population.

Indeed, this incongruity between the values internalized through medical education and the needs of the public has been noted before. Julie Fairman, a professor of nursing writing on the forces that brought about nurse practitioners, notes: "Most medical education did not match the skills and knowledge of the students with the needs of the communities they were to eventually enter…"16 Even valuable generalist skills, like obtaining medical history and performing a physical examination, she says, were often not adequately learned in medical schools. This appears to signify dangerous changes in professional values that do not align with the needs of the public. It is therefore morally imperative to address the values central to the medical profession in order to more adequately address the health needs of the nation.

A final prescription for changes in professional values of medicine to be manifested institutionally comes from a personal correspondence with pediatrician Dr. Arthur Kohrman regarding the institutional roots of specialization and the de-emphasis of primary care. Dr. Kohrman noted that from his experience in medical education and *admissions* procedures, he feels that medical school admissions are just as important as curriculum for the output of doctors with commitment to professional values. Under this admis-

sions emphasis, the values and motivations that lead an applicant to pursue medicine would be equally scrutinized alongside test scores, grades, and recommendations. Thus students admitted to medical schools would bear the motivations for a commitment to community health.

The medical profession has to look at what behaviors, attitudes and motivations--what moral values-- are being rewarded in institutions of medical education align them more closely with the imperative needs among the public that include needs for primary care and general practice. A set of moral values is one of the necessary components that differentiate professions from other high-skill fields as the central values of medicine cannot be forgotten or ignored in professionalization. If students are being educated in the absence of a particular set of values (including: caring for human beings, as members of families and communities, and as dignified individuals with a sense of self and personhood that is threatened by disease and ill health), then the medical profession is neglecting a key aspect of what constitutes the profession.

One might challenge this method of changing values to bring about change in healthcare structures as unrealistic or impossible. However, there are several responses to such an objection. First, specialization is not the problem; thus, a mere attempt to curb trends in specialization will not adequately address the true causes of structural neglect of primary care. As physician Erin Egan says, "The solution is to fix the system, not limit specialization." Social systems, to a large extent, reflect the values of a given social group. To alter those values is to alter the system.

In support of this *values first* approach, let me cite the observation of medical historian Charles Rosenberg (1989) regarding the history of the medical profession. He notes that *de facto* change in medicine often occurs *well before* a lagging institutional response.[17] That is, doctors begin doing things differently well before such changes are absorbed into institutions. Thus a change in values,or in the rank of values,will bring about a change in the *de facto* practice of medical professionals. This will be followed by changes in social systems and institutions to return priority to primary care and its benefits to community health.

Further, some may claim that the American healthcare system is too far out of physicians' control; that the government and private sector are too influential. However, physicians are not as disenfranchised in American healthcare as they may seem. When speaking of the changes in healthcare after World War II, Rosenberg notes: "In this gradual bureaucratization of

medicine, the profession has retained an extraordinary amount of influence."[18] Indeed, the very makeup of a profession is such that it is given sole power over a service, *relative* self-governance, and determination. And while this is only relative self-governance and the government and private sector do wield influence, it is fair to say that medical doctors are still in the driver's seat of American healthcare (as witnessed in the AMA influence of Obama's healthcare reform). Thus, a values-first approach shifting back to primary care is sufficient to bring about the institutional changes needed. The social power afforded to physicians is substantial and entirely capable of the major changes argued for in the present study. The potential failure of the professional body of medical doctors to reassess their values and better fit the needs of the public brings up an interesting possibility for the future of American healthcare. We have already witnessed a slight decline in life expectancy and an increase in problems best addressed in general practice–obesity, hypertension, diabetes, and heart disease. Meanwhile, as doctors exceedingly allow their profession to move away from the effective approaches to these problems in primary care, healthcare has also seen a rise of previously subordinated professionals. Nurses, nurse practitioners, physicians assistants, and physical therapists are beginning to claim more power to practice independently and are beginning to fill the roles once filled by family physicians.

I ultimately see two possible directions for the American medical profession if its doctors do not respond to the dire need for appropriate primary care with a reformulation and reaffirmation of core moral professional values. Either medical doctors will lose their place at the forefront of healthcare to previously subordinate professions that actually address public needs, or medicine will continue on this trend of increasing specialization and decreasing public health. The latter will likely doom those in America to inadequate and discordant care. It becomes clear that physicians, in order to better meet the pressing needs of the pubic, are *morally obligated* to address the central values of their profession that are causing the harmful de-emphasis of primary care. Or at the very least, physicians must get out of the way of other professionals who will meet those needs and who *do* embody the values of community health and primary care.

Notes:

1. Mary Carmichael. 2010. "The Doctor Won't See You Now." Newsweek. March 8. Accessed online: http://www.newsweek.com/id/234218.

2. T Bodenheimer, Robert A. Berenson, and Paul Rudolf. 2007. "The Primary Care-Specialty Income Gap: Why It Matters." Annals of Internal Medicine 146 (4): 301.

3. Sue Thomas Hegyvary. 2007. "The U.S. Health Care System." In Policy and Politics in Nursing Health Care, edited by Diana J. Mason, Judith K. Leavitt, and Mary W. Chaffee, 256-73 St. Louis, MO: Saunders / Elsevier. 269.

4. Charles E. Rosenberg 1989. "Doctors and Credentials—The Roots of Uncertainty." In The Origins of Specialization in American Medicine, edited by Charles E. Rosenberg 198. New York: Garland.

5. David T Ozar, and David J. Sokol. 2002. Dental Ethics at Chairside: Professional Principles and Practical Applications. Washington, DC: Georgetown University Press. 64

6. Julie Fairman. 2008. Making Room in the Clinic. New Brunswick: Rutgers University Press. 37

7. John L. Hildreth 1989. "The General Practitioner and the Specialist." In The Origins of Specialization in American Medicine, edited by Charles E. Rosenberg, 165-82. New York: Garland.

8. Ibid. 167.

9. Ibid.179.

10. Ibid. 182.

11. Jeffery Markuns, Larry Culpepper, and William Halpin Jr. 2009. "A Need For Leadership in Primary Health Care for the Underserved: a Call to Action." Academic Medicine 84 (10): 1326.

12. Paul Rockey and Daniel Winship 2009. "Nurturing Leaders for an Environment of Change." Virtual Mentor11 (11): 886.

13. Bodenheimer, T, Robert A. Berenson, and Paul Rudolf. 2007. "The Primary Care-Specialty Income Gap: Why It Matters." Annals of Internal Medicine 146 (4): 302.

14. Ibid., 304.

15. Rockey and Winship, "The Primary Care-Specialty Income Gap: Why It Matters." 888.

16. Fairman, Making Room in the Clinic. 39-40.

17. Rosenberg "Doctors and Credentials—The Roots of Uncertainty." 197.

18. Ibid. 199.

References:

1. Bodenheimer, T, Robert A. Berenson, and Paul Rudolf. 2007. "The Primary Care-Specialty Income Gap: Why It Matters." Annals of Internal Medicine 146 (4): 301-6.

2. Carmichael, Mary. 2010. "The Doctor Won't See You Now." Newsweek. March 8. Accessed online: http://www.newsweek.com/id/234218.

3. Egan, Erin. 2006. "Practical and Ethical Implications of Hospitalists as Subspecialists." Virtual Mentor 8 (2): 109-113.

4. Fairman, Julie. 2008. Making Room in the Clinic. New Brunswick: Rutgers University Press.

5. Hegyvary, Sue Thomas. 2007. "The U.S. Health Care System." In Policy and Politics in Nursing Health Care, edited by Diana J. Mason, Judith K. Leavitt, and Mary W. Chaffee, 256-73 St. Louis, MO: Saunders /Elsevier.

6. Hildreth, John L. 1989. "The General Practitioner and the Specialist." In The Origins of Specialization in American Medicine, edited by Charles E. Rosenberg, 165-82. New York: Garland.

7. Markuns, Jeffery, Larry Culpepper, and William Halpin Jr. 2009. "A Need For Leadership in Primary Health Care for the Underserved: a Call to Action." Academic Medicine 84 (10): 1325-27.

8. Ozar, David T, and David J. Sokol. 2002. Dental Ethics at Chairside: Professional Principles and Practical Applications. Washington, DC: Georgetown University Press.

9. Rockey, Paul and Daniel Winship. 2009. "Nurturing Leaders for an Environment of Change." Virtual Mentor11 (11): 886-90.

10. Rosenberg, Charles E. 1989. "Doctors and Credentials—The Roots of Uncertainty." In The Origins of Specialization in American Medicine, edited by Charles E. Rosenberg 193-200. New York: Garland.

Ethanol in Brazil:
Sustainability from Land Use since the 1970s

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Abstract:

The expanding population coupled with the high demand for technological advances and natural resources in Brazil has created an ever-increasing demand for energy. As natural resources such as oil and fossil fuels become scarcer, the need to reduce the burden on the planet by developing renewable technologies has become urgent. Discovering and developing new technologies in ways that do not degrade the natural environment is, however, a difficult task to many countries where sustainability is top priority.

The term renewable energy has come to include energy sources that can be used and replenished at the same rate. Energy from sunlight, ocean waves, and wind are all examples of renewable energy, since they are naturally replenishing energy sources. Renewable energy sources will not run out, since there is a very large amount of energy that can be derived from them. One such form of renewable energy is called biofuel. Biofuel is created from bioenergy, which is defined as energy derived directly or indirectly from photosynthetic processes (1., 2229). The two most common forms of biofuel are ethanol, which is produced from sugarcane or corn, and biodiesel, which is produced from soybean, animal fat, and several other raw materials (1., 2229). Biofuels, like ethanol, are considered a sustainable option because the amount of carbon dioxide released from burning ethanol is the same amount needed to cultivate the sugarcane that produces this compound, as sugarcane takes in carbon dioxide from the environment as part of photosynthesis.

Brazil is the country most associated with biofuel production and use. This is because in Brazil, ethanol is harvested from sugarcane, one of the country's top

1970s, the Brazilian government realized the potential for the ethanol industry. Soon, ethanol-fueled cars and factories sprang up across the nation, and sugarcane farmers experienced a large spike in business. Since then, the ethanol industry has experienced some turbulence, as a result of global oil prices and demand for sugar. Brazil managed to integrate renewable energy into their domestic fuel economy with great success. With new technological advancements and proper policies in place, the cultivation and use of biofuels is a seemingly sustainable option for countries with a similar agricultural history as Brazil. However, without the proper balance between biofuel production and natural habitat conservation, Brazil's ethanol production could encourage biodiversity loss and excess carbon release, rather than sustainability.

The Portuguese introduced sugarcane to Brazil in the fourteenth century. By the seventeenth century, huge sugarcane plantations were common in Brazil's northeastern states (1. P2230). In the 1970s, oil prices rose astronomically, and by 1974, Brazil had to pay nearly double the amount it had paid in previous years to import enough oil for domestic use (7., 28). At the same time, Brazil was losing revenue in another market: sugar. The price of sugar was steadily declining, putting farmers and sugar producers out of jobs and placing a burden on the national economy (7., 28). The combination of these two issues created a dilemma for Brazil's military government (2., 750). In an effort to tackle both issues, the government decided to enhance Brazil's small ethanol industry by launching Pro-Álcool (1., 2230). Pro-Álcool was a program dedicated to ethanol production and implementation (1., 2230). The goal of the program was to "substitute 20-25 percent of gasoline with anhydrous ethanol" (2., 750).

From 1975 to 1980, Pro-Álcool was under strict government regulation. Incentives such as low interest loans, regulated alcohol prices, production quotas, and guaranteed purchase by the state owned the oil company, Petrobas. This provided a market and fixed prices of ethanol, which gave sugarcane farmers and ethanol producers enough faith to continue expanding production (1., 2231). The government even implemented quotas for sugarcane production that established the amount of sugarcane that could be used for sugar rather than ethanol production. To further the development of ethanol as a biofuel, funding was dedicated to researching many aspects of ethanol production in order to minimize manufacturing cost and increase fuel efficiency (1., 2231). The government encouraged the production of ethanol-powered cars, and required that gas stations to install ethanol pumps (7., 28).

However, the government soon became unable to continue funding the incentives that began in 1975. By 1980, inflation rates had increased nearly 110%, and by 1985, the inflation rate was a high as 235% (1., 2231). At the same time, Brazil was undergoing a political shift. The government was moving away from military regime towards democracy (1., 2231). A combination of high inflation rates and shift in government ideology led to increase in the cost of ethanol production and decrease in funding the research and development of biofuels. As a result, the Brazilian government was unable to purchase ethanol or pay for incentives. Lack of money for research led to a standstill in efficient ethanol production. The public began to lose faith in Pro-Álcool and the potential benefits of ethanol. In 1988 Brazil adopted a new constitution that eliminated "permanent subsidies; privatized steel, mining, and energy sectors; and terminated Pro-Álcool" (1., 2232). Overall ethanol production decreased during this time period. Fortunately, the global demand for sugar was fairly high, and Brazilian farmers were able to continue growing sugarcane without losing income from the decline of the ethanol industry. Around 1995, inflation finally stabilized. Without regulation, the sugar and ethanol industry faced high harvest rates (1., 2232). Overproduction was common, which caused global sugar and ethanol prices to fall as demand increased (1., 2232). The increase in oil prices in 2000 made ethanol production more appealing. Flexible-Fuel Vehicles, which could run on ethanol or gasoline, became extremely popular; by 2006, "75% of new cars manufactured in Brazil were FFVs" (1., 2232). Today, 29.7% of Brazil's energy comes from biofuels (2., 750).

Initially the sole reason for developing ethanol was supposed eco-

nomic benefit (7., 33). Today, however, ethanol use is encouraged because of its potential as a sustainable and renewable fuel. Biofuels are considered sustainable fuels because they theoretically have neutral carbon cycles so they only release as much carbon dioxide as the feedstock absorbs (6., 170). Neutral carbon cycles provide stability in terms of carbon dioxide output and input and do not contribute to greenhouse gas emissions. Since biofuels are created from biomass, the same amount of carbon dioxide absorbed from the sugarcane's photosynthesis process is re-released into the atmosphere when the ethanol is burned as fuel (6., 170). In 2002, ethanol consumption in Brazil was 12 billion liters, which reduced greenhouse gas emissions by 25.8 million tons of carbon dioxide, assuming released carbon dioxide is proportional to burned ethanol (7., 40). According to the World Resources Institute, a blend of 10% ethanol with gasoline reduces carbon monoxide, a compound that causes damage to the ozone layer. Furthermore, using ethanol "as an additive displaces highly toxic and volatile components of gasoline" (7., 36). Biofuels can reduce global dependence on oil, decrease air pollution from greenhouse gases, and create employment opportunities for farmers (7., 40).

The current process to ferment ethanol from sugarcane is very efficient. Sugarcane naturally ferments into alcohol if left in "low-oxygen conditions" (6., 13). However, natural fermentation can take several decades (6.,13). Ethanol producers have discovered that yeast expedites the fermentation process by years. First, the feedstock (sugarcane) is ground to make processing more efficient (6.,13). Then, sugar is either "dissolved out of the material or the starch is converted into sugar" (6.,13). Next, the sugar is added to yeast in a close anaerobic chamber to prevent excess oxygen from slowing the process (6.,13). The yeast secretes enzymes that convert the sugar into lactic acid, hydrogen, carbon dioxide and ethanol (6.,13). This process of continuous fermentation was discovered in the 1960s. During continuous fermentation, yeast can be recycled. This reduces costs and energy from heating and cooling, and increases speed and efficiency (6.,14). Technological improvements in the twenty-first century have also made it possible to use waste organic material, such as bagasse (leftover sugarcane after extraction of sugar) to create biofuels (6., 23). Often the bagasse is used to as a boiler fuel, which generates electricity for the ethanol production mill (6.,14). Expansion of such ideas could prove to be extremely sustainable in the future.

Although biofuels theoretically have a neutral carbon cycle, they realistically do release some excess carbon dioxide into the atmosphere. This hap-

Sugar cane, as shown on the left, can be used to make ethanol.

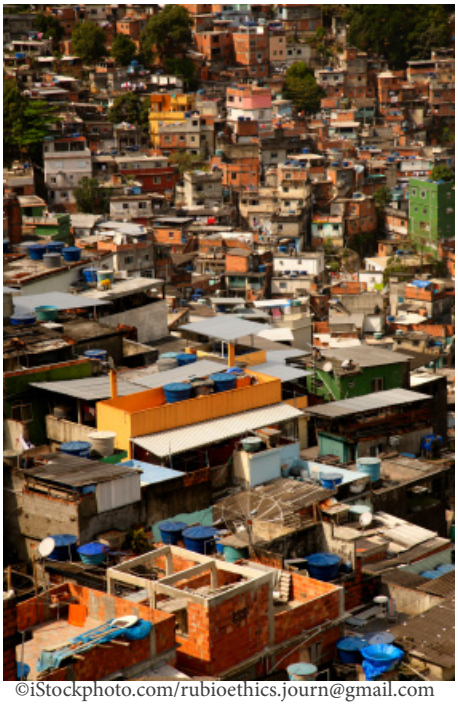
pens in an absolute carbon cycle which accounts for energy used to harvest sugarcane and clear land. According to the World Resources Institute, in 2004, the actual energy output per unit of energy input was 8.3 to 10.2, proving that biofuels may be more sustainable than fossil fuels. However, they are still in need of improvement in terms of the total carbon cycle (7., 40). Land use practices are a major source of carbon dioxide output in ethanol production. The total life cycle emissions will vary depending on four conditions: bioenergy crop required, amount of land used, transition of land from previous crop or landscape, and fertilizer used (6., 171).

The farming and cultivation of sugarcane is the most "greenhouse gas intensive stage in the life cycle of biofuels" (6., 171). The amount of carbon stored within the land is roughly twice of atmospheric carbon. When land is cultivated for cropping, large amounts of carbon dioxide are released from the soil into the atmosphere. Sugarcane production is a land-intensive activity. Therefore, land based sugar production could potentially result in the emission of excess carbon dioxide. When sugarcane is grown on abandoned or degraded agricultural lands, the release of excess carbon dioxide from the earth is reduced, since degraded lands have low carbon dioxide storage (3., 1235). If land, such as rainforests, wetlands, or savannahs, are converted into farms or plantations for intensive agricultural use (as it is in the case of sugarcane), carbon will be emitted from the soil over time. Such lands have high carbon

storage because of the abundance of plant life that captures carbon dioxide and stores it in roots and soil for photosynthesis (3, 1236). In these cases, even crops that are used for renewable fuel have a net carbon output. The time required for the crop to absorb the same amount of carbon dioxide as was released from the natural land is termed the "carbon debt."

Each crop has different "carbon sequestration characteristics depending on factors such as fertilizer requirements and root systems" (6., 171). Often crop management practices are not taken into account when calculating the carbon cycle of biofuels (6., 173). The diesel used to drive tractors and farm machinery in addition to fertilizers that release nitrate oxides and hydrocarbons all increase greenhouse gas emissions. Methane, which captures 20 times more heat than carbon dioxide, is also commonly used as a fertilizer When used as fertilizer, it is released into the atmosphere and contributes to greenhouse gas emissions (6., 173). Fertilizers and pesticides are generated using large amounts of fossil fuels, which therefore create excess greenhouse gas emissions (6., 173).

In order to prepare land for argiculture, it is first burned and then tilled. When rainforests, wetlands, or savannahs are burned, large amounts of carbon dioxide (greater than or equivalent to the amount released from the soil) enter the earth's atmosphere as a result of the combustion of natural capital. Natural capital is defined as "the real goods and services of the ecological economic system" (5., 40). This suggests that natural capital encompasses aspects of the natural environment such as plants or animals that go on to produce more plant or animal species annually. Sustainability between man and nature is often defined as a consistency in natural capital (5., 38). Examples of renewable natural capital are ecosystems and natural habitats, whereas nonrenewable natural capital includes fossil fuels and mineral deposits (5., 39). Renewable natural capital store and absorb large amounts of carbon dioxide. This is why the existence of natural capital is necessary to maintain a stable carbon cycle and capture excessive carbon emissions. When natural capital is burned transformed into agricultural land, the fire as well as the soil release large amounts of carbon dioxide. Events in Indonesia and Malaysia illustrate the importance of natural capital (6., 199). In 1997, thousands of acres of rainforest in Indonesia and Malaysia were burned to create palm oil plantations (6., 199). The burning of rainforest in one specific area of the world caused a significant escalation of global greenhouse gas emissions and a threat to biodiversity, i.e. endangered species such as the tiger, Sumatran Rhinoceros and Asian



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"Photo taken from inside Rocinha favela in Rio de Janeiro. Favelas have an image of being violent and dangerous due to guns and drug trafficking. They are also considered hotbeds for disease. This favela is slated to be pacified in time for the 2014 World Cup Soccer and 2016 Summer Olympics."

elephants (6., 199). This case proves that sustaining natural capital and preserving natural habitats is crucial to avoid excessive carbon output.

Sugarcane farming for ethanol occurs on nearly sixty-three million hectares of land in Brazil (2., 749). (One hectare is equivalent to 10,000 square meters.) Sugarcane plantations are scattered throughout southeastern states such as Sao Paulo, Minas Gerais, Rio de Janeiro, and Parana. Over time, they have slowly expanded to the northern states as well (4., 3398). Areas used for cattle grazing (usually cleared rainforests) are now becoming sugarcane plantations (6., 197). One of the Brazilian landscapes threatened by sugarcane harvesting is the Cerrado, which is home to 935 bird species and nearly 300 mammal species, most of which are threatened or endangered (6., 172). The wild savannahs of the Cerrado are considered a new frontier for expansion of sugarcane production. Approximately half of the land currently used for sugarcane production is also used for the production of ethanol. According to a study completed by Joseph Fargione et al (2008), the carbon debt from converting dense areas of the Cerrado into land for sugarcane ethanol is 165 megagrams of carbon dioxide per hectacre and the total time to repay the carbon debt would be seven years.

Preservation of Brazil's natural capital is essential to maintaining relatively steady rates of global greenhouse gas emissions. The Brazilian Amazon, Cerrados, and wetlands along the Paraguay River are three of the most di-

verse and unique ecosystems in the world (6., 198). The destruction of the Brazilian rainforest could release well over 700 megagrams of carbon dioxide per hectare, creating a carbon debt repayment time of 319 years (3., 1236). With proper policies to protect natural capital along with sufficient technological advancements and sustainable agricultural practices in place of more efficient extraction of ethanol, biofuel production could become an extremely sustainable and renewable energy option.

The study completed by Joseph Farigone et al. urges biofuel production to occur on degraded land since soil from degraded land emmits less CO2 than do soils from lands of other kinds. (3.,1237). They suggest that, "diverse mixtures of native grassland… promote carbon storage in the ground, and offer[s] wildlife benefits" (3., 1237). Growing on degraded land will have a positive impact on biodiversity and wildlife conservation (6., 201). Practicing crop rotation on degraded lands could improve carbon sequestration in the ground, which would in effect reduce greenhouse gas emissions. Short-rotation forests and perennial grasses grown on degraded lands would increase biomass above and below the surface (6., 185). For the future, crops that sequester large amounts of carbon and have positive fuel efficiency should be implemented to decrease the amount of carbon dioxide in the atmosphere (6., 184).

Technological advancements can improve the efficiency of fuel obtained per unit of sugarcane land (6., 185). Converting plant cellulose into ethanol has great potential for improvement and greenhouse gas reduction since feedstock can come from next generation feedstock (forest debris or biofuel waste material) (6., 185). Predictions suggest that next generation feedstock could provide greenhouse gas reductions of 80-90% (6.,185).

In addition to technological and agricultural practices, proper policies must be in place in order to protect natural capital and prevent unnecessary greenhouse gas emissions. Policies should also be flexible enough to battle new problems as they arise, yet steadfast enough so that cannot be avoided or ignored (6., 289). Certification rules, specifically for biofuels, should be in place in order to set minimum "social and ecological standards" (6.,297). Certification procedures would require that ethanol producers practice sustainable farming practices: less methane fertilizers, crop rotations, and use of degraded land over new land (6., 298). Policies that give to petroleum subsidies should be removed because they discourage the study and expansion of sustainable and renewable fuels such as biofuels (6.,289). Instead, subsidies should be shifted towards re-

search dedicated to sustainable ethanol production.

The sustainability of ethanol depends on how people decide to use it . In countries like Brazil, ethanol has the potential to clear air pollution, decrease greenhouse gas emissions, and demote fuel dependency. It also has the potential to demote the destruction of natural capital and unsustainable farming practices. The production of biofuels, therefore, can do both harm and good. . If the world demands a cleaner future, then a stable production of biofuels could be the next wave of renewable energy resources.

References:

1. Anon. 2005. *Growing in the Greenhouse: Protecting the Climate by Putting Development First*. Hyacinth Billings. Worldwatch Institute.

2. Costanza, Robert, and Herman E. Daly. "Natural Capital and Sustainable Development." Conservation Biology 6 (1): 37-46.

3. Ellis, David, and Luciano Lourenco Nass. "Biofuels in Brazil." Crop Science Society of America: 47.

4. Fargione, Joseph, Jason Hill, David Tilman, Stephen Polasky, and Peter Hawthorne. 2008. "Land Clearing and the Biofuel Carbon Debt." Science 319 (1235). doi:10.1126/science.1152747.

5. Grunwald, Micheal. 2008. "The Clean Energy Scam." Time Magazine, March 27.

6. Lapola, David M., Ruediger Schaldach, Joesph Alcamo, Alberte Bondeau, Jennifer Koch, Christina Koelking, and Joerg A. Priess. 2010. "Indirect Land-Use Changes can Overcome Carbon Savings from Biofuels in Brazil." Proceedings of the Natural Academy of Sciences of the United States of America 107 (8).

7. Wilkinson, John, and Selena Herrera. 2010. "Biofuels in Brazil: Debates and Impacts." Journal of Peasant Studies 37 (4): 749-768.

8. Worldwatch Institute. 2007. *Biofuels for Transport: Global Potential and Implications for Sustainable Energy and Agriculture*. London: Earthscan.

Leprosy Stigma in the Middle Ages and 19th Century

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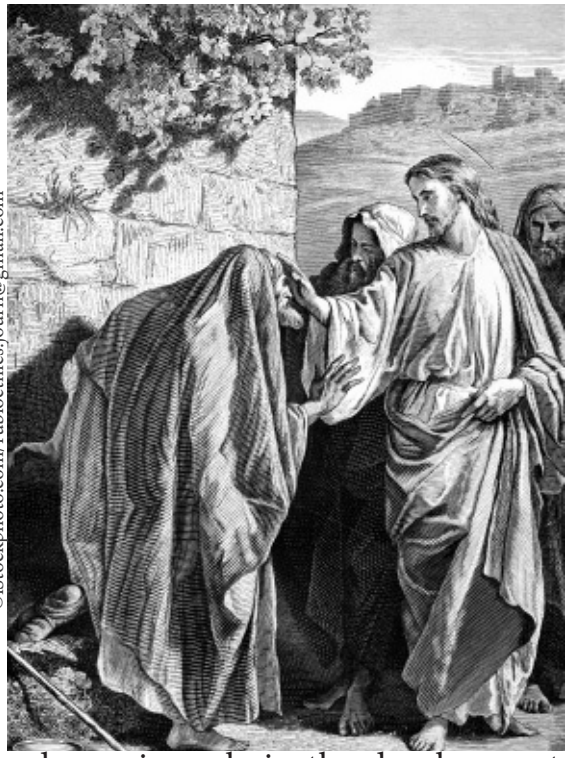
Abstract:

Leprosy, or Hanson's disease, is a condition famous for its historical and sociological importance rather than its medical identity. The stigma associated with the disfiguring disease has persisted across different time periods and cultures. Two periods of particular significance in cataloguing the history of leprosy stigma are the Middle Ages and late Victorian 1800s. Medieval society's attitude towards leprosy primarily draws from the Bible. Many biblical passages describe a generic dermatological condition called *tsara'ath* used as a punishment from God to sinners. Sufferers of the condition are considered unclean and are therefore ordered to reside apart from society. When this Hebrew term was translated as *lepra* in Latin, *tsara'ath* was incorrectly associated with leprosy in the Middle Ages. Those affected by the disease in this time period were exiled from society and sent to leprosariums, communities dedicated to the confinement of leprosy patients. In practice, however, these institutions served as safe havens for leprosy sufferers who were discriminated against and often denied property, marriage, and home ownership rights in mainstream society.

After a decline in recorded incidences towards the late 1500s, both leprosy and leprosy stigma reappeared at the end of the nineteenth century in areas of Asia, Africa, and Europe. Some scholars maintain that medieval leprosy stigma simply carried over through time, as the disfiguring manifestations of the disease universally arouse disgust and aversion. However, this paper argues that the motivations behind leprosy stigma in the nineteenth century stem from regionally specific social and political situations. In particular, Western imperialism and its sense of superiority over other areas of the world in which leprosy was endemic



"This vintage engraving depicts Jesus Christ healing a man suffering from leprosy. This moving scene from the Bible was engraved after the artwork of Alexander Bida (1813 - 1895). It was published in an 1875 collection of artwork featuring Christ, and is now in the public domain. Digital restoration by Steven Wynn Photography."

played a major role in the development of leprosy stigma. Countries in which societal responses to the disease were scientifically objective and effective, such as Norway, are evidence that leprosy stigma was not universal in the late 1800s. Although leprosy stigma was also absent among native Hawaiians, Western political rule imposed a policy of exile within Hawaii's borders. I will explore a variety of specific social and political factors that lead to these two distinct responses to leprosy at the end of the nineteenth century.

Leprosy (Hansen's disease) is a medical condition whose social stigma has rivaled its medical identity throughout history. To this day, the word "leper" is associated with images of disfigured, poverty-stricken outcasts in third world countries and evokes feelings of disgust and aversion. Because leprosy stigma has consistently appeared in tandem with the disease through history, some have argued that aversion to leprosy is an innate and natural human response. Others have held that biblical references to the disease influenced responses to leprosy in both the Middle Ages and nineteenth century. However, close examination of societal responses to leprosy reveals that this is not the case. Both negative and positive biblical references to leprosy influenced medieval responses to the disease. In the nineteenth century, however, regionally-specific sociopolitical factors influenced societal responses to leprosy, as demonstrated by contrasting the situations of Norway and Hawaii.

Though much is now known about the pathology of leprosy, many key aspects of the disease remain a mystery. Leprosy is an infectious disease caused by *Mycobacterium leprae*, a close cousin of the tuberculosis bacilli. *M. leprae* is notoriously difficult to study. The first successful transmission of the bacterium in the 1970s to an experimental animal, the armadillo, occurred after a century of failure; to this day, it has not been cultivated *in vitro*.[1] These difficulties introduce an element of uncertainty to leprosy research although the presence of the bacilli in skin lesions of affected individuals supports the claim that M. leprae does in fact cause leprosy.[2] The exact method of transmission of the bacilli, however, is still unknown. The most prevalent theory until recently was direct skin contact. Because high numbers of *M. leprae* have been found in the nasal mucosa of affected individuals, the World Health Organization (WHO) currently considers a respiratory route more likely.[3]

The incubation period and symptoms of leprosy also introduce uncertainties to current understandings of the disease. Once inside the body, *M. leprae* undergoes a long, nonspecific incubation period lasting anywhere from a few months to twenty years.[4] This long dormancy makes it extremely difficult to pinpoint the source of infection.[5] The disease manifests itself through the skin, nerve, and muscle functions. Common signs and symptoms include skin lesions that may be disfiguring, nerve damage resulting in impaired or absent sensation, and general muscle weakness.[6] Because these symptoms can indicate a number of dermatological conditions, leprosy is well known for its mimicry and is often misdiagnosed.[7]

The question of leprosy's contagiousness is still not fully understood because it seems to vary from person to person. In some cases, individuals with years of direct contact with leprosy patients never develop the disease, whereas others become infected with *M. leprae* after only short periods of exposure. Current theories hold that innate genetic susceptibility is a major factor in determining whether or not an exposed individual will develop leprosy.[8] In today's world, leprosy is a relatively uncommon and very treatable disease. Between the 1940s and 1960s, multidrug therapy (MDT) emerged as an effective treatment killing "the great majority (99.9%) of leprosy bacilli within a few days, so rendering the patient with multibacillary leprosy non-infectious".[9] In the year 2000, leprosy was globally "eliminated" as a public health threat, though the disease is still endemic to certain African, South American, and South Asian countries.[10] The medical community's success in treating leprosy belies the

social stigma the disease has faced and continues to do so today.

References to "leprosy" in the Bible and early biblical commentaries largely formed the basis for the treatment of leprosy sufferers in medieval Europe. The earliest known mention of leprosy in history occurs in the *Sushruta Samhita*, an ancient South Asian medical text composed around 600 BCE. The text provides detailed descriptions of the disease's presentation, indicating that leprosy must have existed in the Far East in the ancient past. Modern historians believe that leprosy only arrived from this endemic area to the land around the Mediterranean much later, around 300 BCE.[11] However, the Bible, which was composed significantly earlier than this date, makes frequent reference to "lepers" and "leprosy." This apparent contradiction is due to the translation of the Hebrew word *tsara'ath*, which literally means "stricken" or "defiled," as the Latin and Greek *lepra*. The generic Biblical *tsara'ath* that refers to a variety of dermatological conditions such as leukoderma, vitiligo, and psoriasis, then, was incorrectly associated with the specific medical condition leprosy in the Middle Ages.[12]

Biblical references to *tsara'ath* simultaneously present the disease in negative and positive lights. Frequent mention of the disease occurs in the Book of Leviticus, where a "compilation of laws" devotes two of its twenty-seven chapters to the subject.[13]Leviticus is largely concerned with the issues of *tahor*, cleanliness that embodies holiness, and *tameh*, dirtiness that "would defile a place of worship".[14] In this context, the Book defines the leper as "one of the group of persons and things ritually impure" and "unfit to enter a place consecrated to God".[15] This biblical association of leprosy with somatic and religious impurity serves as the logical foundation for the removal of lepers from society. Many passages in Leviticus argue strongly for such segregation, such as Leviticus 13:3: "And if he see the leprosy in his skin…it is the stroke of leprosy, and upon his judgment he shall be separated".[16] In similar passages, Moses commands that the "children of Israel…put out of the camp every leper" and that "the leper in whom the plague is, his clothes shall be rent, and his head bare, and he shall put a covering upon his upper lip, and shall cry, 'Unclean, unclean'".[17] This vivid image of the leprosy sufferer warning away all who would come near him emphasizes the incorrect but widespread notion that leprosy is a highly contagious condition.

In addition to its biblical association with bodily impurity, leprosy is also equated with sin and moral depravity. For example, many stories in the Old Testament depict the condition as God's punishment for sinners. One

such tale is that of Miriam and Aaron who are punished with "snow-white scales, the leprous affliction described in Leviticus 13:2-3" for questioning their brother Moses.[18] Specifically, leprosy is most often associated with the sin of lust and "sexual depravity".[19] Early commentators of the Old Testament claim that the disease is "a metaphor for adultery" and that a key symptom of the condition is insatiable lust.[20] These depictions often caused the early medical community to incorrectly classify leprosy as a sexually transmitted disease.[21] Thus, the sinfulness of the disease was considered communicable, and lepers were thought to "threaten society…through their corrupt and evil behavior".[22]

Not all biblical references to leprosy portray the disease in a negative light. In fact, many passages promote the idea that the leprosy sufferer is "given special grace by God".[23] One of the most well known benevolent examples of leprosy in the Bible is the story of Lazarus, the "model of the chosen leper" who is granted immediate passage into heaven after a life of suffering from the disease.[24] This parable gives rise to the notions that a life of leprosy leads to "'the salvation of the soul'" and that leprosy sufferers are especially loved by God.[25] In addition, leprosy is also associated with Jesus, who was said to have cured lepers of their illness. On many occasions, Jesus "appears before the faithful in the form of a leper," which serves to portray the disease as a kind of "sacred malady".[26] Such positive references to leprosy served as the basis for the Church's philanthropic stance concerning medieval lepers.

Leprosy's dual status as a feared and revered disease in medieval society was a direct product of biblical references to the disease. Leprosy was undoubtedly a "familiar disease" in Europe during the Middle Ages and had likely existed on the continent since at least the fourth or fifth century A.D..[27] After the fall of the Roman Empire, the Catholic Church became the political backbone of Western Europe. Thus, virtually all aspects of medieval society, from art and education to political structure and medicine, were highly influenced by Christianity and, subsequently, the Bible.[28] Because of this influence, it was very common for various diseases to be associated with deadly sins. "The notion of leprosy as a moral disease was particularly intense and deep-rooted" because of the vivid descriptions of *tsara'ath* in the Bible.[29] The ideas of somatic and moral impurity found in Leviticus were widely held in medieval society and seemed to justify the official policy of exiling leprosy sufferers.

However, in contrast to prevalent negative attitudes towards the condition, many in medieval society treated leprosy sufferers with a mixture

of compassion and reverence. For instance, Saint Louis (Louis IX of France) often sought the presence of lepers as a means of connecting with God. Another example of this line of thinking was Queen Matilda, the wife of Henry I, who "described washing their ulcerous feet as 'better than kissing the lips of a mortal'".[30] These practices and attitudes were a direct product of positive biblical portrayals of leprosy emphasized by the Church.[31] In an effort to bring traditionally marginalized populations such as leprosy sufferers under the jurisdiction of Christian bishops, the Church popularized the parable of Lazarus in order to portray leprosy as sacred.[32] As a result, some devout members of society such as Saint Louis and Queen Matilda sought out the company of lepers for a religious experience. Though these views did have an impact on medieval society, older views of leprosy as the sinner's disease had a greater influence on leprosy policy.

The medieval practice of sending leprosy sufferers to leprosaria outside of society exemplifies both Bible-influenced viewpoints. In many areas of Europe, the law required leprosy sufferers to voluntarily report themselves to authorities who would formally diagnose their condition. Because self-reporting was rare, however, the exile process more commonly began with the accusations of the individual's neighbors.[33] In accordance with the biblical injunction that "it is the duty of the priest to diagnose the disease and either pronounce the leper clean or separate from society," a clergyman rather than a medical physician often made the final diagnosis.[34] Upon a positive diagnosis, the law generally required the accused leper's separation from society "accompanied by [an] appropriate ceremony" called the *separatio leprosorum*.[35] One particularly striking version of this ceremony was the "leper's mass," in which the leprosy sufferer would be symbolically buried by a priest who simultaneously chanted passages from Leviticus. However, modern historians believe this particular ritual was not as prevalent as was earlier believed.[36]

The asylums that leprosy sufferers were sent to simultaneously served as hospitals, monasteries, prisons, and refuges. In accordance with the biblical command that lepers should reside "without," leprosaria were built outside of towns and cities.[37] A leprosarium could be as simple as a wooden hut with a cross on the door or as elaborate as an enclosed agrarian community equipped with a chapel, cemetery, priest, and many residential buildings.[38] The residents of a leprosarium were sometimes required to take monastic vows, but more often, they were expected to attend Mass and contribute to the community.[39] Ironically, expulsion from the institution was the ultimate punishment of many leprosaria.

This fact highlights the role of these institutions as safe havens. Because medieval law often denied the leprosy sufferer the right to own property, marry, and own a home, "the best the leper could do would be to turn from the world and enter the closed society of the leprosarium".[40] Though leprosy sufferers were theoretically forbidden from leaving the leprosarium, evidence suggests that enforcement of these rules were often lax in practice. For example, the *cagots* ("white lepers") of southern France were largely allowed to live in freedom. Even the stricter French leprosariums such as the one at Rivery allowed residents that obtained permission to leave the house at certain times of the year when contagion was less feared.[41] While the practice of segregating the leprosy sufferer in leprosariums was largely based on biblical depictions of leprosy as morally corrupt and impure, the role of these institutions in providing a refuge for the leper from harsh medieval society points to the connection between leprosy and religious philanthropy.

With the decline of leprosy at the end of the Middle Ages and its resurgence in the nineteenth century, the disease's place in society took on new social and political dimensions. The incidence of leprosy in the Middle Ages began to decline in the early fourteenth century, possibly due to depopulation caused by the Bubonic Plague, improvements in public health, and the replacement of *M. leprae* with the "more urban" tuberculosis bacillus.[42] By the sixteenth century, leprosy had become a fairly rare disease in Europe and was limited to a few isolated areas in the north.[43] It remained relatively dormant in the Western world until the mid-nineteenth century, when it began to resurge in endemic areas such as Louisiana and Hawaii as well as countries like Norway and India. With this reappearance of the disease, negative social responses to leprosy branching from stigma and stereotypes also resur faced. Many scholars have argued that the medieval biblical view of leprosy as

an unclean and morally sinful disease was powerful enough to have carried over into the nineteenth century. Others hold that the grotesque physical characteristics of the disease have consistently elicited aversion and disgust throughout history, leading to similar developments of stigma.[44] However, both of these viewpoints are crucially flawed.

In the centuries between the decline of leprosy at the end of the Middle Ages and its resurgence in the nineteenth century, Europe "'[was] not familiar with leprosy and had no direct experience with it'". [45] Thus, it is unlikely that medieval leprosy stigma persisted in society through this period of time and reemerged with the incidence of the disease. In addition, theorists who argue for the universality of leprosy stigma neglect "those situations in which the disease has been present, recognized, and even treated…but in which strong aversion has been absent". [46] Examples of regional endemic groups that did not exhibit any aversion to leprosy include the general populace of Norway, Scandinavian immigrants in the Upper Mississippi Valley, native Polynesians in Hawaii, the indigenous population of Australia, and the entire Islamic world.

The main perpetuators of leprosy stigma in the nineteenth century were actually Westerners imposing their aversions to the disease on other cultures.[47] Perhaps the most important reason for this intense lepraphobia was the notion of racial superiority commonly held in Western countries at the time. The nineteenth century was a time characterized by imperialism, a practice that was founded on the belief that "civilized" countries, primarily Britain and the United States, were justified in annexing and colonizing "inferior" peoples on the basis of the "survival of the fittest" principle.[48] The development of germ theory, which identifies tiny communicable agents as the cause of disease, led to the notion that contact with such "inferior" peoples was polluting. Thus, "whole populations were labeled 'contaminants' in ways never previously considered".[49] When leprosy began to surface in Asia and the Pacific, Europeans and Americans immediately labeled leprosy as a disease of "inferior" peoples. With this label came the unfounded assumption that leprosy was highly contagious. This spurred a fear that through contact with peoples of foreign countries, leprosy could spread to the "civilized" population. Leprosy then landed in the political spotlight, greatly influencing immigration policy in the United States and foreign policy in areas of interest to the country, such as Asia and the Pacific.[50]

In contrast, the way Norway handled the leprosy problem in the nineteenth century is paradigmatic. Public health concerns were free of leprosy stigma. The early 1800s in Norway

was a period of both rising nationalism and economic strife brought on by the Napoleonic wars. Areas most effected by the economic crisis were poor, rural, farming communities and fishing villages, where "living conditions remained primitive, severe, and unsanitary" and a whole host of diseases such as scabies, worm disease, tuberculosis, scrofula, syphilis, and leprosy, thrived.[51] When the population of the country began to simultaneously skyrocket, the peasantry developed into a powerful political force, a phenomenon absent in other European countries until much later in history. Because peasants were mostly concerned with the "internal administration of the country" and improving living conditions in areas hit hard by the economy, a whole host of national reforms helped rebuild the Norwegian economy by the middle of the century.[52] Because careful attention was paid to the rural population, public officials became aware of leprosy's increasing presence in the country very early. The peasant-controlled government recognized that leprosy was a national problem that Norway would have to deal with quickly. Thus, they came up with a systematic plan to evaluate the extent of the disease, research it scientifically, and reduce its incidence. In the execution of this plan, a "national leprosy registry" was established to gather epidemiological information and funding was allocated for "clinical and pathological" research.[53] Though leprosariums such as St. Jorgens were erected for leprosy sufferers, these institutions implicated the roles of dedicated hospitals and rarely enforced separation.[54] The Norwegian government's scientific and stigma-free approach to eliminate leprosy was a direct product of the country's social and political situation as a non-imperialist power run by the peasantry.

The shameful manner in which the problem of leprosy was handled in nineteenth century Hawaii stands in sharp contrast to the paradigm presented by Norway. The mid 1800s in Hawaiian history was a time of political turmoil and Western imperialism. With the development of the sandalwood and whaling industries, Western influence on Hawaii grew and the power of native Hawaiian monarchs waned significantly.[55] In addition, a sharp decline in the native Hawaiian population due to disease increased US despite this apparent universality, the root causes of societal responses to leprosy have varied depending on the sociopolitical factors of the place and and European power even further.[56] When incidences of leprosy first increased in Hawaii, the native population displayed no aversion or desire to segregate people with leprosy. In fact, the centrality of family in Hawaiian culture meant that a family member found to have leprosy was cared for at home by his or her relatives as in the case of any other illness. As leprosy

continued to affect mostly the native Hawaiian population, Americans and Europeans in the kingdom began to fear that unchecked, the Hawaiian's disease could threaten Hawaii's "civilized" white population.[57] Western legal policy developed that strictly enforced "the forcible separation of husbands and wives, [and] parents and children" and their segregation to dedicated leprosariums isolated from society.[58] The most infamous of these was the Kaluapapa colony located on the island of Molokai: a natural paradise and social hell. Hawaiian leprosy sufferers sent to this institution were not provided proper medical treatment. Instead, they were given scarce water and dirty, ragged clothing and were forced to live in "makeshift huts, constructed out of branches of caster oil trees".[59] In such conditions, social norms and morality were soon abandoned in favor of anarchy.[60] Because of the awful consequences of leprosarium exile, native Hawaiian population soon began to call leprosy the "separating sickness".[61] The root cause of such mistreatment was the imposed political rule over the Hawaiian country and not any biblical associations with the disease.

Leprosy stigma has appeared nearly whenever in human history the disease has been prevalent. However, time in question. Because of the centrality of Christianity in medieval Europe, leprosy was viewed in terms of biblical presentations of the disease. Policies that exiled the medieval leper into leprosariums outside of society mirrored notions of the impure, sinful leper portrayed in Leviticus. In contrast, the simultaneous presentation of leprosy as a "sacred malady" by the Church stemmed from positive biblical references to the disease, such as the parable of Lazarus. With the reappearance of leprosy in the nineteenth century, the root causes of leprosy stigma changed to mirror the sociopolitical factors of the time and place, as demonstrated by contrasting the societal responses of Norway and Hawaii. In this time period, imperialistic Western powers and ideas of racial superiority were major factors in the development of stigma.

Though leprosy is no longer the global health threat it once was, social stigmas tied to disease continue to plague our society. Individuals suffering from HIV/AIDS, alcoholism, sexually transmitted disease, obesity, mental illness, and physical disabilities, among other conditions, endure the discrimination and ostracization of their peers every day. These stigmas, born of ignorance and nurtured independently of medical reality, are perpetuated by socially accepted but untrue notions and stereotypes. By critically examining the historical, social, and political foundations of social stigmas tied to disease, as this paper has done in the context of leprosy stigma, we as a society will be better equipped to combat them.

Notes:

1. Z. Gussow, Leprosy, Racism, and Public Health. (San Francisco: Westview Press, 1989), 6.

2. Ibid.

3. World Health Organization (WHO). "Leprosy: the Disease." Leprosy Eradication. 2005. Accessed October 1, 2011, from http://www.who.int/lep/leprosy/en/index.html.

4. Ibid.

5. T. Gould. A Disease Apart: Leprosy in the Modern World. (New York: St. Martin's Press, 2005), 13.

6. National Institute of Allergy and Infectious Diseases. Leprosy (Hanson's Disease). 2011. Accessed October 1, 2011, from http://www.niaid.nih.gov/ topics/leprosy/Pages/Default.aspx.

7. S.N. Brody. The Disease of the Soul: Leprosy in Medieval Literature. (Ithaca: Cornell University Press, 1974), 32.

8. Gould, A Disease Apart: Leprosy in the Modern World, 14.

9. Ibid., 16.

10. World Health Organization (WHO), "Leprosy: the Disease."

11. Gould, A Disease Apart: Leprosy in the Modern World, 2.

12. Ibid.

13. Quoted in Brody, The Disease of the Soul: Leprosy in Medieval Literature, 108.

14. Ibid., 109.

15. Ibid., 112.

16. Ibid., 21.

17. Quoted in Gould, A Disease Apart: Leprosy in the Modern World, 3.

18. Quoted in Brody, The Disease of the Soul: Leprosy in Medieval Literature, 113.

19. Ibid., 129.

20.Ibid., 129; 53.

21.Ibid., 53.

22. Ibid., 52.

23. Ibid., 101.

24. Ibid., 102.

25. Ibid., 103.

26. Ibid., 104.

27. P. Richards. The Medieval Leper and his northern heirs. (Cambridge: D. S. Brewer Ltd, 1977), 4.

28. M. Quigley. The Middle Ages. (Chicago: Heinemann Library, 2003), 14.

29. Quoted in Brody, The Disease of the Soul: Leprosy in Medieval Literature, 11; Gould, A Disease Apart: Leprosy in the Modern World, 7.

30. Quoted in Gould, A Disease Apart: Leprosy in the Modern World, 6.

31. Brody, The Disease of the Soul: Leprosy in Medieval Literature, 104.

32. Richards, The Medieval Leper and his northern heirs, 286.

33. Brody, The Disease of the Soul: Leprosy in Medieval Literature, 61.

34. Ibid.; Richards, The Medieval Leper and his northern heirs, 98.

35. Quoted in Brody, The Disease of the Soul: Leprosy in Medieval Literature, 65.

36. Gould, A Disease Apart: Leprosy in the Modern World, 6.

37. Ibid., 5; Brody, The Disease of the Soul: Leprosy in Medieval Literature, 73.

38. Brody, The Disease of the Soul: Leprosy in Medieval Literature, 74.

39. Ibid., 76-78.

40. Ibid., 86.

41. Ibid., 93.

42. Richards, The Medieval Leper and his north ern heirs, 83; Gussow, Leprosy, Racism, and Public Health, 18.

43. Gussow, Leprosy, Racism, and Public Health, 12.

44. Ibid., 10-11.

45. Ibid., 12.

46. Ibid., 11.

47. Ibid., 16.

48. Ibid., 19.

49. Ibid.

50. Ibid.

51. Ibid., 68.

52. Ibid.

53. Ibid., 70-71.

54. Ibid., 69.

55. Ibid., 86.

56. Ibid., 87.

57. Gould, A Disease Apart: Leprosy in the Modern World, 61.

58. Ibid., 62.

59. Ibid., 66.

60. Ibid., 68.

61. Ibid., 59.

References:

1. Gussow, Z. *Leprosy, Racism, and Public Health*. San Francisco: Westview Press, 1989.

2. Gould, T. *A Disease Apart: Leprosy in the Modern World*. New York: St. Martin's Press, 2005.

3. World Health Organization (WHO). "Leprosy: the Disease." Leprosy Eradication. 2005. Accessed October 1, 2011, from http://www.who.int/lep/leprosy/en/index.html.

4. National Institute of Allergy and Infectious Diseases. *Leprosy (Hanson's Disease)*. 2011. Accessed October 1, 2011, from http://www.niaid.nih.gov/topics/leprosy/Pages/Default.aspx.

5. Brody, S.N. *The Disease of the Soul: Leprosy in Medieval Literature*. Ithaca: Cornell University Press, 1974.

6. Richards, P. The Medieval Leper and his northern heirs. Cambridge: D. S. Brewer Ltd, 1977.

7. Quigley, M. *The Middle Ages*. Chicago: Heinemann Library, 2003.

The Problem with Martyrdom: Religious Arguments Against Suicide

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Abstract:

Whether it is permissible or impermissible for a human being to take his or her own life for any reason whatsoever is an important question to consider. The problem of the morality of suicide is one that many disciplines have attempted to solve. In particular, religious arguments against suicide attempt to preserve cherished theological beliefs by maintaining that suicide is a sin and a transgression of God's will. In this paper, I consider Catholicism's arguments against suicide, through the figures of St. Aquinas and St. Augustine, and attempt to show that their arguments fail. This failure is not only found in the particular philosophical arguments used to argue for the impermissibility of suicide, but is inherent in a religious phenomenon itself: martyrdom. The distinction between suicide and martyrdom is very vague and arbitrary. If Catholicism wants to continue to cherish its holy martyrs, then its view on suicide needs to be reformulated to account for such a problematic distinction.

In this paper I will argue that some *religious arguments* against suicide (in particular, those given by Catholicism), are weak and perhaps somewhat arbitrary. This is not to say that if these religious arguments against suicide fail, it therefore follows that suicide is morally or legally permissible. The morality of suicide in general, which encompasses a vast literature in itself, does not fall under the purposes of this paper. My main aim is to highlight the problematic nature

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of some religious arguments against suicide. In fact, I will attempt to show that a major problem with these arguments is internal, that is, their flaws are derived from a religious phenomenon itself: martyrdom.

My structure will be as follows: I will first present Aquinas' arguments against suicide and its various objections. Then, I will present Augustine's argument against suicide, followed by my own objections to Augustine via a historical argument concerning martyrdom. However, before discussing the various arguments, there are a number of important considerations to take careful note of before venturing into this thorny topic.

First, I will be making various theological and historical assumptions throughout. For example, I will assume the truth of God's existence and the basic religious claims made by the Christian faith. Moreover, I will assume the falsity of the various physicalist accounts of the universe and of the mind and body. The physicalist account is the belief that human thought and action is governed by natural and physical laws and that all reality is explicable in terms of physical properties and laws. In consequence of the latter assumption, I will be allowing the truth of some sort of mind-body dualism in which the soul and body are ontologically distinct entities, and also the truth, or at least the mere possibility, of immortality.

It is of great importance to attempt to define what *suicide* is as the main subject of this paper. However, just as Fred Feldman notes it is quite

difficult "to formulate a satisfactory philosophical analysis of the concept of death," it is equally difficult to formulate a satisfactory philosophical analysis of suicide.[1] "In particular, identifying a set of necessary and sufficient conditions for suicide that fits well in our typical usage of the term is especially challenging."[2] Furthermore, invoking the term "suicide" has its own drawbacks because of the negative connotations associated with such a pejorative rendering often presupposing moral judgments that are not "value-neutral."[3] In fact, "the term *suicide*…is a relatively new word, unattested before the mid-seventeenth century".[4] Though this may seem like an unimportant bit of linguistic history, it relates to the problem of providing a satisfactory definition of "suicide," because in antiquity there was no "uniformly negative term to denote the act of self-killing".[5] One must thus tread very carefully when considering traditional arguments against "suicide;" it is important not to confuse a modern conception of the idea with an ancient one.

Nevertheless, I will use the term "suicide" when appropriate (e.g., when discussing the famous arguments prohibiting suicide, as this is the term commonly used when discussing these traditional arguments). On the other hand, when not following the precedent of traditional arguments, I shall distance myself from any preconceived moral judgments by instead using the term *voluntary death* as a value-neutral designation of an "act resulting from an individual's intentional decision to die, either by his own agency, by another's, or by contriving the circumstances in which death is the known, ineluctable result."[6] This definition deserves a short discussion of its particulars since they will be useful in grappling with the concept of suicide. In order to formulate a satisfactory definition, I will now consider cases relating to the above-mentioned definition in order to illuminate the contentious issues surrounding the concept of voluntary death.

The first important consideration is that of the *foreseeability* of voluntary death. Jeff McMahan addresses this issue: "It is also reasonably clear that, when a person does something that he merely foresees may or will result in his death, he does not necessarily commit suicide."[7] Consider the case of Russian Roulette: a dangerous game that requires player(s) to pull the trigger of a revolver gun that is aimed at the player's own head. The revolver contains only a single round and is spun at random prior to each pulling of the trigger, so that the players do not know with any certainty whether the single round has spun in such a way that will result in the firing of the single bullet or not. In this case, the player may reasonably foresee that he may be shooting himself, but it is incorrect to call

this behavior an act of voluntary death, or "suicidal behavior." If it happens to be the case that a player does, in fact, succeed in shooting himself during the course of this game, it would be more appropriate to call this act merely an *accidental* death.

What is lacking in the discussion of the Russian Roulette case is a specification of the agent's *intention* in carrying out such an act. The Russian Roulette player's death may be foreseen, but not intended. The problem of intention is one that is central to discussions of voluntary death. For an act is to be an act of voluntary death, it must be one in which it is true that death is in some respect the aim of the agent's behavior and that the agent in question chooses to die.[8] For example, if some agent S placed all six rounds into a revolver, believed that the bullet fired from this gun into one's head would result in death, and intended to die by shooting himself/herself with this gun, then if S were to shoot himself/herself, S's act would seem to be an act of voluntary death. However, this example is not without its shortcomings. The problem of intention is deeper than one may at first suppose. "The essential logical difficulty resides in the notion of intending to die, for acting so as to produce one's death nearly always has some *other* aim or justification…Therefore it is not the case that suicidal individuals intend death per se, but rather that death is perceived, rightly or wrongly, as a means for the fulfillment of another of the agent's aims."[9] Thus, even the concept of intention is potentially problematic when determining whether or not an act is a case of voluntary death. I think this discussion of voluntary death, (or suicide), has been adequate to merit a discussion of religious arguments against suicide, to which I will now turn.

As Feldman presents it[10], Aquinas's argument against suicide was threefold. The first argument from natural inclination is as follows:

> ***1. Every act of suicide is contrary to the natural inclinations of human be ings.***
> ***2. If an act is contrary to natural inclinations, then that act is morally wrong, or imper missible.***
> ***3. Therefore, every act of suicide is morally wrong, or impermissible.***

Feldman rejects premise 2 on the grounds of the vagueness of an act's running contrary to natural inclinations.[11] Feldman does not elaborate on where exactly this vagueness lies. However, Feldman also rejects premise 2 via the counterexample regarding lemmings, mouse-like rodents who "commit mass suicide by leaping off cliffs and falling into the sea."[12] There is, however, a bit of controversy surrounding this counterexample. Some

hold that animals like lemmings do not have the capacity for high-order beliefs and therefore cannot commit an act of voluntary death. I will not pursue the controversy further, as there are more definitive objections to Aquinas's first argument.

John Donne offers another objection to this argument in his work, *Biathanatos*, published posthumously against his wishes. It is considered "the first comprehensive modern defense of suicide."[13] In this work, he argues directly against Aquinas's argument from natural inclination, stating that if life is to be considered natural, the same can be said about death; a natural desire for dying may be a part of the human condition.[14] I think Donne is getting at an important point here. There is evidence for the existence of self-destructive behavior in human beings, and successful acts of voluntary death. These cases may not conclusively prove that self-preservation is necessarily a natural inclination, but they at least cast doubt on the claim that self-preservation is a natural inclination.

Nevertheless, I find Donne's other objection more promising: if suicide "were contrary to the law of nature mandating self-preservation, all acts of self-denial or privation would be similarly unlawful."[15] What Donne is arguing here is that Aquinas's argument from natural inclination implies that other natural inclinations, such as drinking water and eating food to survive, would also be considered unlawful if we were to abstain from them. Consider the case of a person who is scheduled for a blood test, which usually requires fasting for at least 8-12 hours. According to Aquinas's argument, abstaining from eating during this time, which runs counter to natural inclinations, is unlawful. However, this is obviously an absurd implication. Therefore, I think Aquinas's argument from natural inclination is weak and fails to show that suicide is morally impermissible.

Aquinas's second argument against suicide is as follows:

> ***1. Every part belongs to the whole in virtue of what it is.***
> ***2. Every person that is part of a community will contribute good works to the benefit of his or her community.***
> ***3. Any act of suicide deprives the person involved in such an act from contributing good works to the community.***
> ***4. Therefore, suicide is wrong in that it damages the community of which he or she is a part.***

I agree with Feldman that there is no reason to suppose that premise 2 is true: "Surely there are some cases in which a person is so incapacitated that he is no longer able to make a worthwhile contribution to the welfare of others".16 In this instance, the good of the community may not be affected


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at all. In addition, it seems to me that there are many members of our society who do not contribute good works to the community at all; in fact, some may actually bring harm to the community. Hume notes this himself: "But suppose that it is no longer in my power to promote the interest of society, suppose that I am a burden to it, suppose that my life hinders some person from being much more useful to society. In such cases, my resignation of life must not only be innocent, but laudable".17 Thus, if a person actually brings harm to a society, it may be morally required for that person to commit an act of voluntary death. This seems to be a troubling implication of Aquinas's argument; the very opposite of what he was arguing for. Therefore, I think Aquinas's second argument also fails.

Aquinas's third argument is as follows:

> ***1. Life is a gift made to man by God.***
> ***2. God is master over decisions concerning life and death.***
> ***3. Attributing to oneself any act or decision that is appropriate to God, the gift-giver, is a sin and morally impermissible.***
> ***4. Suicide is an act inappropriately made by the person concerning decisions over life and death.***
> ***5. Therefore, every act of suicide is morally wrong, or impermissible.***

Hume also responds to this argument. However, his argument is quite intricate and depends upon an interpretation of what he calls the "divine order." Cholbi provides a thorough examination of two interpretations of Hume's view:

> ***If by the 'divine order' is meant the causal laws created by God, then it would always be wrong to contravene these laws for the sake of our own happiness. But clearly it is not wrong, since God frequently permits us to contravene these laws, for he does not expect us not to respond to disease or other calamities. Therefore, there is no apparent justification, as Hume put it, for God's permitting us to disturb nature in some circumstances but not in others. Just as God permits us to divert rivers for irrigation, so too ought he permit us to divert blood from our veins.***[18]

In this interpretation, similar to the one provided by Feldman, Hume is arguing that suicide is akin to turning "aside a stone which is falling upon [one's] head." Both acts involve disturbing the course of nature, and invading "the peculiar province of the Almighty."[19] According to Feldman, either all trivial acts involve rebellion against God, or none of them do. Obviously, it is absurd to draw such a conclusion, and on this basis I think that Aquinas's third argument also fails.[20]

However, there is another interpretation of Hume's "divine order" that Cholbi offers:

> ***Finally if by 'divine order' is meant simply that which occurs according to God's consent, then God appears to consent to all our actions (since an omnipotent God can presumably intervene in our acts at any point) and no distinction exists between those of our actions to which God consents and those to which He does not. If God has placed us upon the Earth like a "sentinel," then our choosing to leave this post and take our lives occurs as much with his cooperation as with any other act we perform.***[21]

It seems that this second reading of Hume's "divine order" appeals to God's divine attributes, which are namely, God's omnipotence and omniscience. The implications of God's divine attributes are made clearer in the following passages from Hume's essay, "On Suicide":

> ***Every event is alike important in the eyes of that infinite being, who takes in at one glance the most distant regions of space, and remotest periods of time. There is no event, however important to us, which he has exempted from the general laws that govern the universe, or which he has peculiarly reserved for his own immediate action and operation.***[22]

Furthermore, Hume notes that:

> ***For my part I find that I owe my birth to a long chain of causes, of which many depended upon voluntary actions of men. But providence guided all these causes, and nothing happens in the universe without its consent and co-operation. If so, then neither does my death, however voluntary, happen without its consent; and whenever pain or sorrow so far overcome my patience, as to make me tired of life, I may conclude that I am recalled from my station in the clearest and most express terms.***[23]

One might object to the second formulation of Hume's argument by stating that it undervalues the free will that God bestows upon mankind. Providence via God's omnipotence and omniscience may guide the various occurrences of the universe, but this argument does not follow that God is consenting and co-operating with one's choice to commit an act of voluntary death. If I choose voluntary death, it does not follow, if I do indeed have free will, that God has determined my choice for voluntary death. However, in response to the appeal to free will, one can attack the "gift" analogy in premise 1. "The obvious weakness with the 'gift analogy' is that a gift, genuinely given, does not come with conditions such as that suggested by the analogy, i.e., once given, a gift becomes the property of its recipient and its giver no longer has any claim on what the recipient does with this gift."24 Furthermore, Cholbi notes Kluge's remark that "a gift we cannot reject is not a gift."25 No human being has any choice in his or her being born, so life cannot be a "gift" in this sense. Thus, these considerations are potentially problematic for an appeal to free will. Nevertheless, I think Hume's argument (in particular the first interpretation of "divine order") has sufficiently shown the weakness of Aquinas's third argument, and therefore, I think it also fails.

I will now turn to a different type of argument against the permissibility of voluntary death given by Augustine. Augustine's argument differs markedly from Aquinas's philosophical approach. Instead, he derives his argument from an appeal to scriptural authority. A possible reason for such a line of reasoning is the heated dispute Augustine had with a contemporaneous and zealous Christian sect known as the Donatists, who, in their own view, were righteous martyrs, but according to Augustine, were guilty of suicide.As I will attempt to show, however, Augustine's argument from scripture not only fails, but also has very problematic implications.

The Online Catholic Encyclopedia entry on suicide maintains "that suicide is unlawful is the teaching of the Holy Scripture and of the Church, which condemns the act as a most atrocious crime."26 However, many biblical scholars will attest to the fact that suicide is nowhere explicitly prohibited in the Bible. In fact, Augustine himself, in The City of God, admits to this: "It is significant that in the sacred canonical books there can nowhere be found any command or permission to inflict death on ourselves either to ensure immortality or escape any evil."27 There are at least six specific cases of voluntary death in the Hebrew Scriptures (i.e., Abimelech, Saul and his armor-bearer, Samson, Ahithophel,

and Zimri) and the text seems to be silent on the act itself (hence the use of the term voluntary death, rather than suicide, a pejorative term, when discussing ancient texts). Yet, in other areas of the text, most of these figures are given proper burials and are praised for being noble. There are also certain saints in the Christian tradition who have composed letters clearly showing a strong desire for voluntary death (an example will be given shortly). In anticipation of such concerns, the Catholic Encyclopedia notes that:

> ***God being the master of our life, He may with His own consent remove from suicide whatever constitutes its disorder. Thus do some authorities justify the conduct of certain saints, who, impelled by the desire of martyrdom and especially to protect their chastity did not wait for their executioners to put them to death, but sought it in one manner or other themselves; nevertheless, the Divine Will should be certain and clearly manifested in each particular case.***[28]

This passage implies that the Catholic faith views martyrdom and suicide as distinct in some manner. It seems to suggest that the Divine Will should be present in the case of an act of martyrdom. However, the problem of how one is supposed to recognize the Divine Will, according to Droge and Tabor, has never been solved. Nevertheless, Augustine still attempts to make a distinction between suicide and martyrdom by appealing to the intention that each martyr or suicide has in carrying out their act. In fact, each case of alleged martyrdom is so different that they must be judged on a case-by-case basis. One case in par-

ticular, however, will be paramount to my argument.

Before turning to it, I will briefly explore how intention will help distinguish between martyrdom and suicide. I think it is fair to assume that the intention of a martyr should differ markedly from that of the suicidal individual. According to Augustine, "authentic martyrdom was considered to be an act which was aimed at the good of the witness and not at self-destruction."[29] Thus, the intention of the martyr will properly be on thoughts of God, and the intention of the suicide will properly be on thoughts of oneself (on Augustine's view, the latter is a manifestation of the sin of pride). Furthermore, Augustine has a famous saying in relation to this heated debate over martyrdom: "Punishment does not make true martyrs but the reason [for the punishment.]"[30] Augustine condemns the "voluntary nature of the act...that is, the intentional and willing decision of an individual to die, either by killing himself or by provoking his own death."[31]

In addition, Augustine views suicide as a transgression of the law: "he who kills himself is a homicide, and so much the guiltier of his own death, as he was more innocent of that offence for which he doomed himself to die."[32] Augustine justifies this through "the law, rightly interpreted": "how much greater reason have we to understand that a man may not kill himself, since in the commandment, 'Thou shalt not kill,' there is no limitation added nor any exception made in favor of any one."[33] He continues, emphasizing that "the commandment is, 'Thou shalt not kill man;' therefore neither another nor yourself, for he who kills himself still kills nothing else than man."[34]

I think Augustine is mistaken in appealing to scriptural authority for his argument. As I mentioned above, suicide (or an act of voluntary death) is nowhere prohibited in the Bible. This may have led Augustine to appeal to such a vague and imprecise piece of scripture which could be appealed to for a variety of arguments. Augustine has various views on the permissibility of killing in his theory of just war (a theory formulated in order to justifiably persecute the Donatists), in which he clearly allows a violation of the commandment to which he has just appealed. However, I think Augustine is aware of this and so he qualifies his appeal to scriptural authority with a few exceptions.

Augustine notes that there are some "exceptions made by divine authority." Two cases he addresses: "a just law that applies generally" or "a special intimation from God Himself."[35] This special intimation from God communicates, I think, the same thing as a recognition of the Divine Will or

Command. For example, "Samson… who drew down the house on himself and his foes together, is justified only on this ground, that the Spirit who wrought wonders by him had given him secret instructions to do this."[36] It is important to note here that Augustine does not refer to Samson as "a martyr," that is, he is not a "witness" to his faith; he is not forced to renounce his own religion and proselytize to another. However, he describes the Christian martyrs in a very similar manner in which it is God that operates through them; this is what he takes to be the signal of Divine Will or Command.

Moreover, though Augustine does not explicitly mention it, he implies that "no man ought to inflict on himself voluntary death, for this is to escape the ills of time by plunging into those of eternity…those who die by their own hand have no better life after death."[37] Thus, suicide must constitute the "death of the whole man" in which "the soul, forsaken by God, forsakes the body."[38] Suicide results in eternal damnation, "that penal and everlasting punishment… [in which] the soul is justly said to die, because it does not live in connection with God."[39] If suicide results in eternal damnation, then what is the result of martyrdom? Augustine describes it in this passage: "Not that death, which was before an evil, has become something good, but only that God has granted to faith this grace, that death, which is the admitted opposite to life, should become the instrument by which life (i.e., immortal life) is reached."[40]

Thus, in Augustine's view, suicide leads to eternal damnation, whereas martyrdom leads to eternal salvation. However, suicide and martyrdom seem like very similar phenomena; or at least they are not as radically opposed to each other as the blessing or curse that each act holds for the agent in the afterlife, namely, eternal salvation or eternal damnation. I do not think this distinction merits any substantial arguments, nor is the difference between the acts proportional to the blessing or curse to be had in the afterlife. Instead, I think the distinction is quite arbitrary. I will show this through an example of an early church father who is considered a great and exalted martyr, but whose letters differ greatly from Augustine's and the present Catholic Church's view on what constitutes a holy martyr. In particular, his intentions seem aimed at death rather than an occurrence of the Divine Will of God or thoughts of God in general. To be fair, determining that one has the Divine Will of God is, as Droge and Tabor noted, a problem that has never been solved, so I will disregard that line of argumentation. However, the passage

Photo by Timur Suhail-Sindhu

below will show that the intentions of Ignatius, the bishop of Antioch, were the very opposite of the kinds of intention described in Augustine's formulation of "authentic" martyrdom. Ignatius was sent to Rome to fight with beasts in the amphitheater. On his way to Rome as a prisoner, he wrote several letters to various churches which reveal the problem that martyrdom has for the church's position on suicide, and in particular, Augustine's own view. *The Epistle of Ignatius* to the Romans is worth quoting at length:

> *I write to the Churches, and impress upon them all, that I shall willingly die for God, unless you hinder me… Only request in my behalf both inward and outward strength, that I may not only speak, but [truly] will; and that I may not merely be called a Christian, but really be found to be one…Allow me to become food for the wild beasts, through whose instrumentality it will be granted me to attain to God. I am the wheat of God, and let me be ground by the teeth of the wild beasts, that I may be found the pure bread of Christ. Rather entice the wild beasts, that they may become my tomb, and may leave nothing of my body; so that when I have fallen asleep [in death], I may be no trouble to any one. Then shall I truly be a disciple of Christ, when the world shall not see so much as my body. Entreat Christ for me, that by these instruments I may be found a sacrifice [to God]….May I enjoy the wild beasts that are prepared for me; and I pray they may be found eager to rush upon me, which also I will entice to devour me speedily…But if they be unwilling to assail me, I will compel them to do so. Pardon me [in this]: I know what is for my benefit. Now I begin to be*

> ***a disciple. And let no one, of things visible or invisible, envy me that I should attain to Jesus Christ. Let fire and the cross; let the crowds of wild beasts; let tearings, breakings, and dislocations of bones; let cutting off of members; let shatterings of the whole body; and let all the dreadful torments of the devil come upon me: only let me attain to Jesus Christ.… Permit me to be an imitator of the passion of my God…For though I am alive while I write to you, yet I am eager to die…I have not written to you according to the flesh, but according to the will of God.***[41]

This letter does not seem to adhere to Augustine's conception of an authentic martyrdom. Ignatius's language, not only in this letter but in the many others he has sent, seems to be directed at the self, rather than to God. This seems to be so even though he claims to write according to the will of God. He takes pride and pleasure from the gruesome and violent details he fantasizes. To me, Ignatius's letters communicate an act of voluntary death (suicide) rather than an act of martyrdom. His death is clearly foreseeable and clearly intended. The problem is that Ignatius is also considered to be a saint. He was "martyred" between 98 and 117 CE. Augustine formulated his views on martyrdom over two centuries later. I think the orthodox position of the Catholic Church at the time was biased towards such early church fathers, making the distinction between suicide and martyrdom arbitrary. If this is too strong a claim, I think it is arguable that the problem should at least be reevaluated. By solving the problem of martyrdom, we may come to a more precise definition of suicide, (which is allegedly distinct from martyrdom), and perhaps also improve the religious arguments against suicide.

Notes:

1. Quoted in Fred Feldman, Confrontations with the Reaper: A Philosophical Study of the Nature and Value of Death (New York: Oxford University Press, 1993), 56.

2. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

3. Ibid.

4. Quoted in Arthur J. Droge, and James D. Tabor, A Noble Death: Suicide and Martyrdom Among Christians and Jews in Antiquity (New York: Harper Collins, 1992), 6.

5. Ibid., 7.

6. Ibid., 4.

7. Quoted in McMahan, Jeff, The Ethics of Killing: Problems at the Margins of Life (Oxford Ethics Series) (New York: Oxford University Press, 2003), 456.

8. Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

9. Ibid.

10. Quoted in Fred Feldman, Confrontations with the Reaper: A Philosophical Study of the Nature and Value of Death (New York: Oxford University Press, 1993), 211.

11. Ibid., 212.

12. Quoted in Fred Feldman, Confrontations with the Reaper: A Philosophical Study of the Nature and Value of Death (New York: Oxford University Press, 1993), 212.

13. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

14. Craig Paterson, "A History of Ideas Concerning Suicide, Assisted Suicide and Euthanasia" (2005). Available at SSRN: http://ssrn.com/abstract=1029229.

15. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

16. Quoted in Fred Feldman, Confrontations with the Reaper: A Philosophical Study of the Nature and Value of Death (New York: Oxford University Press, 1993), 212.

17. Quoted in James Fieser (editor), The Writings of David Hume, (Internet Release, 1995).; http://www.anselm.edu/homepage/dbanach/suicide.htm#A2.

18. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

19. Quoted in James Fieser (editor), The Writings of David Hume, (Internet Release, 1995).; http://www.anselm.edu/homepage/dbanach/suicide.htm#A2.

20. Fred Feldman, Confrontations with the Reaper: A Philosophical Study of the Nature and Value of Death (New York: Oxford University Press, 1993), 213.

21. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

22. Quoted in James Fieser (editor), The Writings of David Hume, (Internet Release, 1995).; http://www.anselm.edu/homepage/dbanach/suicide.htm#A2.

23. Ibid.

24. Quoted in Michael Cholbi, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

25. Ibid.

26. Quoted in Achille Vander Heeren, "Suicide." The Catholic Encyclopedia. Vol. 14. New York: Robert Appleton Company, 1912. 14 Aug. 2011, http://www.newadvent.org/cathen/14326b.htm.

27. Quoted in Oates, J. Whitney, Basic Writings of St. Augustine Vol. 2, City of God (New York: Random House, 1948), 27.

28. Quoted in Achille Vander Heeren, "Suicide." The Catholic Encyclopedia. Vol. 14. New York: Robert Appleton Company, 1912. 14 Aug. 2011, http://www.newadvent.org/cathen/14326b.htm.

29. Quoted in Craig Paterson, "A History of Ideas Concerning Suicide, Assisted Suicide and Euthanasia" (2005). Available at SSRN: http://ssrn.com/abstract=1029229.

30. Quoted in Arthur J. Droge, and James D. Tabor, A Noble Death: Suicide and Martyrdom Among Christians and Jews in Antiquity (New York: Harper Collins, 1992), 170.

31. Ibid., 173.

32. Quoted in Oates, J. Whitney, Basic Writings of St. Augustine Vol. 2, City of God (New York: Random House, 1948), 23.

33. Ibid., 27.

34. Ibid., 27-28.

35. Ibid., 28.

36. Ibid.

37. Ibid., 33.

38. Ibid., 210.

39. Ibid., 211.

40. Ibid., 213.

41. Ignatius, Epistle to the Romans, Translated by Alexander Roberts and James Donaldson. From Ante-Nicene Fathers, Vol. 1. Edited by Alexander Roberts, James Donaldson, and A. Cleveland Coxe. (Buffalo, NY: Christian Literature Publishing Co., 1885.) Revised and edited for New Advent by Kevin Knight, http://www.newadvent.org/fathers/0107.htm.

References:

1. Cholbi, Michael, "Suicide", The Stanford Encyclopedia of Philosophy (Fall 2009 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/fall2009/entries/suicide/.

2. Droge, Arthur J., and James D. Tabor, *A Noble Death: Suicide and Martyrdom Among*
a. *Christians and Jews in Antiquity* (New York: Harper Collins, 1992).

3. Feldman, Fred, *Confrontations with the Reaper: A Philosophical Study of the Nature and*
a. *Value of Death* (New York: Oxford University Press, 1993)

4. Fieser, James (editor), *The Writings of David Hume*, (Internet Release, 1995).;
a. http://www.anselm.edu/homepage/dbanach/suicide.htm#A2

5. Ignatius, Epistle to the Romans, Translated by Alexander Roberts and James Donaldson.

a. From Ante-Nicene Fathers, Vol. 1. Edited by Alexander Roberts, James Donaldson, and A. Cleveland Coxe. (Buffalo, NY: Christian Literature Publishing Co., 1885.) Revised and edited for New Advent by Kevin Knight, http://www.newadvent.org/fathers/0107.htm.

6. McMahan, Jeff, *The Ethics of Killing: Problems at the Margins of Life* (Oxford Ethics
a. Series) (New York: Oxford University Press, 2003)

7. Oates, J. Whitney, *Basic Writings of St. Augustine Vol. 2, City of God* (New York: Random
a. House, 1948)

8. Paterson, Craig, "A History of Ideas Concerning Suicide, Assisted Suicide and Euthanasia"
a.(2005). Available at SSRN: http://ssrn.com/abstract=1029229

9. Vander Heeren, Achille. "Suicide." The Catholic Encyclopedia. Vol. 14. New York: Robert
a. Appleton Company, 1912. 14 Aug. 2011, http://www.newadvent.org/cathen/14326b.htm.

Utility and Factor Structure of the General Health Questionnaire 12

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The General Health Questionnaire (GHQ) was originally developed by Goldberg in 1972 as a self-reported means to detect psychological distress that does not reach thresholds for clinical diagnosis or transient breaks in the otherwise normal and healthy population (Willmott, Boardman, Henshaw, & Jones 2008). The original GHQ comprised 60 items (questions). Subsequent 28 and 12 item versions (GHQ 28 and GHQ 12, respectively) have since been constructed. Mäkikangas et al., (2006) report that nowadays the GHQ 12, because of its conciseness, enjoys a widespread popularity, furthered by findings affirming its validity and reliability (see Goldberg, Gater, Sartorius & Ustun 1997; Hardy, Shapiro, Haynes & Rick 1999; Doi & Minowa 2003). One caveat in the research regarding its utility, however, is a lack of data on adolescents below the age of 17 (Tait, Hulse & Robertson 2002). In addition, the debate within the literature about the number of factors (clusters of items based on related responses of which the GHQ 12 comprises) has produced little consensus. These equivocal findings regarding the factor structure are imperative and merit investigation as factors distil information gathered from questionnaires facilitating interpretation and, in this case, enable the delineation of potential explanations for the distress that people are experiencing. Some researchers advocate a two factor model, comprised of anxiety/depression and social dysfunction (Kiliç et al., 1997) and others a three factor one, comprised of Anxiety-Depression, Social Dysfunction and Loss of Confidence (Greztz 1991). Hankins (2006), however, challenges these multi-dimensional models by expounding the ramifications of wording effects. He proposes that the two factors models posited in the literature can be explained in terms of these wording effects, in the following manner. The GHQ-12 comprises six items that are positive descriptions of mood states or positively-phrased items (PP items; e.g "felt able to overcome difficulties") and six that are negative descriptions of mood

are positive descriptions of mood states or positively-phrased items (PP items; e.g "felt able to overcome difficulties") and six that are negative descriptions of mood states or negatively-phrased items (NP items; e.g. "felt like a worthless person"). Research contends that there is a response bias to NP items, which are more difficult to process because of variation in education or aversion to negative emotional content (see Hankins et al., 2006). Hankins et al., (2006) posits that in respondents currently experiencing no mental ill-health this bias is due the ambiguous response frame within the GHQ. That is, respondents wishing to indicate an absence of a negative mood state are faced with two possible choices: 'Not at all' or 'No more than usual'. Both of which would aptly characterise the status of respondents not suffering mental ill-health. Therefore, this ambiguity creates variation in responses to NP items that is not due to error (in measurement, for example) nor does it reflect an index of a factor such as social dysfunction. Rather this variation acts to create spurious factors (Hankins et al., 2006). Thus multidimensional models of the GHQ (those comprising a number of factors) may, in fact, result from distinction between negatively and positively phrased items and response bias to NP items and not, as other research (e.g. Politi, Piccinelli, Wilkinson 1994; Kiliç et al., 1997) claim, form valid factors, such as social dysfunction of loss of confidence. Sarková et al., (2006) also warns that adolescents may be particularly susceptible to this response bias seen in NP items.

The present study addresses the failings of previous research by evaluat-

ing the utility and underlying factor structure of the GHQ 12 within an adolescent sample (mean age= 15.6, S.D. = 1.3). In line with some of the only relevant research available (that of Sarková et al., 2006) it was hypothesized that a two factor structure, comprised of social dysfunction and depression/anxiety, would be computed. Exploratory factor analyses provided support for this two factor structure hypothesis. However, upon closer inspection of factor loadings (correlations of an item and a given factor), it was found that items loaded in a manner that was not entirely consistent with these two factors but rather seemed, more accurately, to reflect a distinction between negatively and positively phrased items, replicating the findings of Hankins (2008). Therefore a one factor solution was also computed, with all but one item loading with a correlation above 0.3 onto this factor. Interpreted in light of the present findings and extant warnings against the adverse impact of wording effects, particularly within adolescent samples, it was concluded that the underlying structure may, in fact, be best conceptualized as uni-dimensional (one factor). Additionally, the GHQ 12 may be unsuitable for use or, at the least, require cautious implementation, within an adolescent population.

First published in 1972 by David Goldberg, the General Health Questionnaire (GHQ) was designed to detect transient, episodes of mental ill-health which fail to meet the criteria for clinical diagnosis (Willmott, Boardman, Henshaw, & Jones 2008). The logic behind the development of the questionnaire was that, common to all psychological disorders, is an underlying psychological disturbance and distress. It is through assessment of the degree to which a person is presently experiencing such disturbance that non clinical breaks in normal, healthy functioning can be detected (Goldberg & Williams 1988 as cited in Whaley, Morrison, Payne, Fritschi & Wall 2005).

The initial GHQ comprised 60 item (questions) but since its inception 28 and 12 item versions (GHQ 28 and GHQ 12, respectively) have been constructed. The GHQ 28 is the result of Principal Component Analysis (determines what factors exist for a given scale and how the items themselves are related to each factor) of the original 60 item version by Goldberg & Hillier (1979). Although the initial intended use of the GHQ was to screen individuals, recent studies have shown the GHQ 28 to be of utmost utility in the estimation of the prevalence of mental distress within samples (Willmott, Boardman, Henshaw, & Jones 2008; Clarke & McKenzie 1994). The GHQ 12 has been utilized in a similar manner (Whaley et al., 2005) and was developed through the removal of physical health questions present in the GHQ-28. Thus it maximises the unique benefit of the GHQ 28, namely its brevity. The widespread popularity of the GHQ 12 (Mäkikangas et al.,

2006) affirms that quicker analysis and administration is of huge practical advantage to the self administered questionnaire and is undoubtedly greatly appreciated by administrators (Whaley et al., 2005). The GHQ 12 is adequately robust and works as well as GHQ 28 (Goldberg, Gater, Sartorius & Ustun 1997). Hardy, Shapiro, Haynes and Rick (1999) found scores on the questionnaire to be sufficiently correlated with scores on a standardized interview and to be adequately reliable (α=.88). Similarly accurate reliability has been demonstrated across cultures (see Doi & Minowa 2003; Schmitz, Kruse, Heckrath, Alberti, & Tress 1999; Politi, Piccinelli, Wilkinson 1994).

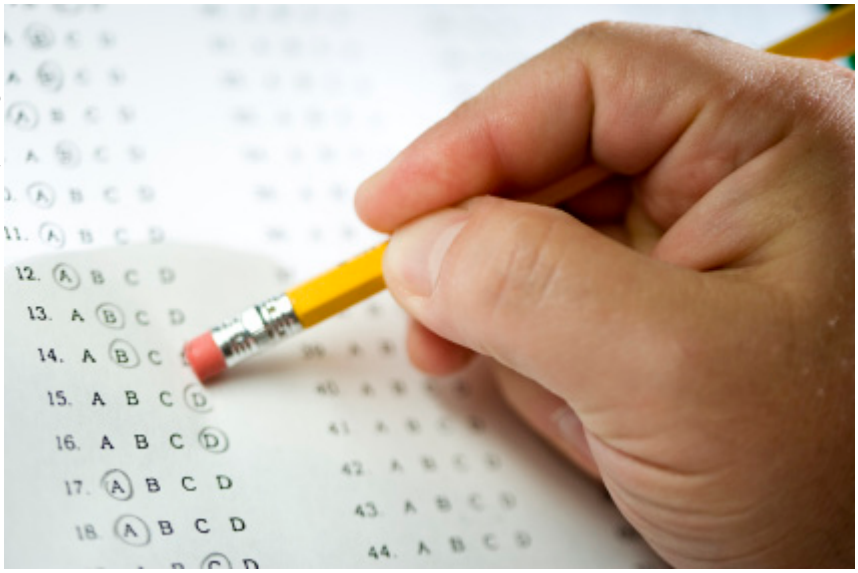
There is much debate over the factor structure of the GHQ 12 in current literature, which, as of yet, has produced little consensus. Some researchers purport a two factor model. Kiliç et al., (1997), found evidence for such a structure, with one factor representing Anxiety/Depression and the other Social Dysfunction. However other researchers suggest the two factors represent Social Dysfunction and general dysphoria (general state of discomfort or distress; Politi et al., 1994). Shevlin and Adamson (2005) state that, amongst the multi dimensional models, the most consistent and reliable is that of the three factor solution proposed by Greztz (1991), comprising Anxiety-Depression, Social Dysfunction and Loss of Confidence. These factors were found to be evident across multiple testing sessions over a one year period and were found to compose the best fitting structure in a review of current proposed models (Cheung 2002). Shevlin and Adamson (2005) also found evidence of a three factor solution. However, they concluded that, because of the factors themselves being correlated, the utility of the GHQ 12 as a multi dimensional measure is, at best, questionable. Hankins (2008) suggests that this oblique factor solution points toward a uni-dimensional (one factor) nature of the GHQ 12. Furthermore, he implicates the role of 'method effects' in causing the arbitrary division in artifactual (a spurious observation arising from the way the items were written) factors (Hankins p. 2, 2008). These effects originate from the composition of the GHQ 12 of six items that are positive descriptions of mood states or positively-phrased items (PP items; e.g "felt able to overcome difficulties") and six that are negative descriptions of mood states or negatively-phrased items (NP items; e.g. "felt like a worthless person"). According to Hankins, the multiple factors computed (through statistical analysis) by other research comprise, and indeed originate from, the distinction between these PP and NP items. Through his own factor analysis of a large sample ($\approx$3700), Hankins concluded that this response bias to NP items was most likely due to the ambiguous response options for indicating the absence of negative mood states

on the GHQ 12. He posits that in respondents currently experiencing no mental ill-health this bias is due the ambiguous response frame within the GHQ. That is, respondents wishing to indicate an absence of a negative mood state are faced with two possible choices: 'Not at all' or 'No more than usual'. Both of which would aptly characterise the status of respondents not suffering mental ill-health. Therefore, this ambiguity creates variation in responses to NP items that is not due to error (in measurement, for example) nor does it reflect an index of a factor such as social dysfunction. Rather this variation acts to create spurious factors (Hankins et al., 2006). He reports that the two two factor solutions previously mentioned are both consistent with this assertion, with one factor comprising NP items and the other PP items. The same goes for three factor models, including the widely acknowledged model of Graetz (1991), with the third factor comprised of either two NP or two PP items (Hankins 2008).. Thus multi-dimensional models of the GHQ (those comprising a number of factors) may, in fact, result from distinction between negatively and positively phrased items and response bias to NP items and not, as other research (e.g. Politi, Piccinelli, Wilkinson 1994; Kiliç et al., 1997) claim, form valid factors, such as social dysfunction of loss of confidence.

Different explanations are offered by other researchers. Bagozzi (1993) suggests such bias is because of an aversion to negative emotional content while Schmitt and Stults (1985) attribute it to inattentive respondents. Whatever the etiological mechanism, such wording effects appear to influence the generation of multi dimensional models-Ye (2009), found that a uni-dimensional model of the GHQ 12 demonstrated only when wording effects were controlled for was.

In a review of the utility of the GHQ (12, 28 and 30 item versions) within an adolescent population, Tait, Hulse & Robertson (2002) found that such utility has been demonstrated mostly with adolescents of age 17 years and above and living in the U.K. or Hong Kong. The researchers highlight this lack of data on younger adolescents (<17) as a limitation of the GHQ. One of the few studies of early adolescents found evidence for a two factor model (comprising depression/anxiety and social dysfunction). However, they stated that researchers must be aware of wording effects and, particularly when working with adolescents, must ensure that participants are able to interpret such items (Sarková et al., 2006). The present study, therefore, aimed to assess the utility of the GHQ 12 within a population of adolescents with a mean age of 15.6 (S.D. = 1.3). This involved the use of Exploratory Factor Analysis (EFA; allow the data to suggest the factor structure most suited to it, rather than analysing the data against a pre-existing model) in order to elucidate the most appropriate factor structure. Based on some of the only rel

evant research- that of Sarková et al., (2006)- it was hypothesized that a two factor structure will be computed. But the possible influence of response bias to NP items may need to be attended to.



Method:

Design/Procedure

All students from 1st to 5th year (between 14 and 17 years of age) that were in school on the particular day of testing completed the GHQ-12 as part of a larger study. Morning class was interrupted by 15 research assistants- 1 per class (3 classes per year), each of whom were briefly introduced to the class as assistants to psychologists, who were gathering data on students. Students were then spread out as much as possible, so that they could not see others' answers or confer. They were reassured by the research assistant that the questionnaire was completely confidential. Subsequently, the teacher instructed the students that they had 10 minutes (but would be given longer if necessary) in which to complete the questionnaire carefully, honestly and in silence without consultation of others. When the allocated ten minutes elapsed, the teacher began to collect the questionnaires.

Participants

454 secondary school going adolescents, between the ages of 14 and 17 (M=15.6, SD= 1.3) participated in the present study. The age datum for one participant was missing. In this sample 59% (269) were male and 41% (185) were female.

Materials

All participants were given a copy of the GHQ-12 with a blank sheet of paper stapled to the front, to act as a cover and ensure anonymity.

Table 1: Factor loadings from the Two-Factor Rotation of the GHQ 12

Item	Factor 1	Factor 2
1. Able to concentrate (PP)	0.327	0.178
2. Lost sleep over worry (NP)	0.720	0.039
3. Play useful part in things (PP)	0.086	0.625
4. Capable of making decisions (PP)	-0.068	0.651
5. Constantly under strain (NP)	0.708	-0.054
6. Could not overcome difficulties (NP)	0.669	0.150
7. Enjoy day-to-day activities (PP)	0.284	0.516
8. Face up to problems (PP)	0.221	0.547
9. Unhappy or depressed (NP)	0.731	0.317
10. Loss of confidence in self (NP)	0.690	0.303
11. Thinking of self as worthless (NP)	0.687	0.358
12. Reasonably happy (PP)		0.547

Results:

Through a previous analysis of the results using Confirmatory Factor Analysis (CFA) no support for a one factor model was computed. Therefore EFA was implemented to investigate the underlying construct structure that would best fit the current data.

With 454 participants and 12 items on the GHQ, the data comply with the general prerequisites that N≥100 and that N> number of items. Additionally, upon inspection of the correlation matrix it was found that there was a large number of correlations ≥ .3. Therefore it was concluded that the data were suitable for EFA.

Principle components analysis revealed the presence of three factors with eigenvalues (numerical indication of the relative importance of each factor) exceeding 1, explaining 34 percent, 10.5 percent and 8.7 percent respectively. Because factor 3 only had one item loading onto it and inspection of the scree plot (graphical representation of the importance of suggested factors) indicated a break after the second factor it was decided to remove this factor. In order to aid the interpretation of the subsequent two factor model Varimax rotation (technique used to simplify the interpretation of suggested factors) was performed. The rotated solution exhibited the presence of simple structure, with both components showing a number of strong loadings and all variables loading substantially onto only one component. The two factor solution explained a total of 44.5 percent of the variance, with

Table 2: Factor loadings from the One-Factor Rotation of the GHQ 12

Item	Factor 1
1. Able to concentrate (PP)	0.327
2. Lost sleep over worry (NP)	0.630
3. Play useful part in things (PP)	0.406
4. Capable of making decisions (PP)	0.289
5. Constantly under strain (NP)	0.571
6. Could not overcome difficulties (NP)	0.646
7. Enjoy day-to-day activities (PP)	0.515
8. Face up to problems (PP)	0.479
9. Unhappy or depressed (NP)	0.788
10. Loss of confidence in self (NP)	0.745
11. Thinking of self as worthless (NP)	0.772
12. Reasonably happy (PP)	0.530

factor one contributing 27.3 percent and factor two 17.7 percent.

The factors computed here may, in fact, be artifactual, with one factor comprising NP items and the other PP items. As Table 1 shows, Factor one extracted here comprises all the NP items with one exceptional PP item (item 1) and Factor two comprises all PP items.

If it is indeed only the wording effects that are responsible for this two factor solution then it seems reasonable to suggest that one should be able to find a successful one factor solution.

Therefore a one factor solution was computed. Varimax rotation was again used, producing a single factor, which explained 34 percent of the variance, with, as Table 2 shows, all but one item loading with a correlation above 0.3 onto this factor

Finally, the internal consistency measure (Cronbach's alpha) was computed and found to be 0.82.

Discussion:

The utility and factor structure of the GHQ-12 within an adolescent population was investigated.

A two factor solution was found but upon closer inspection of the item loadings (correlation of item with a given factor) onto each of these factors it was determined that they were inconsistent with the nature of the two factors produced by previous research. Social Dysfunction and Depression/ Anxiety are the most replicated representations of the constructs amongst two factor models (Kiliç et al., 1997; Sarková et al., 2009). However the results of the present analysis seem to be

inconsistent with these two factor representations as item loadings reported in previous research are not evident here. For example, in the present study item 9 (have you recently been feeling unhappy and depressed), previously associated with the depression/anxiety factor, and item 1 (have you recently been able to concentrate on what you are doing), previously tied to the social dysfunction factor (Shevlin and Adamson 2005), load onto one factor. In a similar manner, factor two comprises both item 3 (have you recently felt that you were playing a useful part in things), reported in previous research to load onto the social dysfunction factor and item 12 (have you recently been feeling reasonably happy, all things considered), previously found to load onto the Depression/Anxiety factor (Shevlin and Adamson 2005).

Thus the factors may, in fact, have been extracted arbitrarily. This is suggested also because the factors appear to comprise merely a distinction between NP and PP, consistent with the findings of Hankins (2008). He proposed that the correct model was that of a uni-dimensional one and the present results seem to be consistent with this assertion. Therefore, whilst on the surface the computed two factor solution appears to be consistent with the hypothesis of such an underlying structure, because of the previously discussed incongruent item loadings little support for the initial hypothesis was exhibited.

The present findings of factors consisting of almost exclusively NP and PP items may be attributable to a response bias to NP items, as found in Hankins (2008). This bias may be responsible for producing additional variation in answers to NP items that is neither accounted for by underlying constructs nor measurement error. Nonetheless it is common to all NP items and thus leads to artifactual factor generation. Sarková et al., (2009) give particular weight to the proposed effect of response bias. This is not only because they emphasize the significant impact negative wording can have but more because they state the particular relevance this may have to an adolescent sample. The bias may be due to aversion to negative emotional content Bagozzi (1993) or inattentive responding (Schmitt & Stults 1985). However the hypothesis of Hankins (2008), that adults exhibit negative word bias because of ambiguous response or a failure to interpret NP items correctly, appears of particular relevance here. This is because of the logical progression that if adults find something difficult, adolescents generally, because of relatively less experience and cognitive ability, will find it even more tasking. Sarková et al., (2009) attests to this, stating that adolescents may not be able to easily interpret NP items. Therefore

because of an increased risk of negative wording effects, adolescents may be less suitable for testing with the GHQ 12 without such wording effects being controlled for. This assertion is, however, in need of further validation and testing by future research. Perhaps a way in which to alleviate the response bias word be to phrase all items similarly. That is, all twelve items would be either NP or PP. This, however, is also reliant on empirical investigation to assess the validity of this claim.

As previously mentioned an analysis of the data using CFA found no support for a one factor solution. But Campbell, Walker, and Farrell (2003) state the CFA is inappropriate to identify the factor model of best fit. Because various models could potentially fit the data, CFA may, in this instance, serve to merely comment on whether or not one specific model is adequately congruent with the data but cannot deduce which model best describes the data. Campbell et al., (2003) conclude by suggesting that only when various models are compared across both the corrected scoring method (Goodchild & Duncan-Jones 1985) and Likert scoring method (Jacobsen, Hasvold, Høyer, & Hansen 1995) that clear differences between model suitability are exhibited. The additional use of the corrected scoring method is consistent with the previously implicated effect of negative word bias as this scoring method accounts for the effect of such by scoring NP and PP items in contrasting manners (Goodchild et al., 1985). More precisely, in this revised scoring, responses in the "no more than usual" category, which are normally given a score of 0, are scored 1 (i.e. counted as 'ill') within NP, but not PP, items. Goodchild et al., (1985) reason that within NP items, those answered in "no more than usual" category, may indicate chronicity of illness and not, as scoring normally infers, health. Therefore, although the EFA one factor solution computed here was problematic because item 4 did not load substantially onto the factor, the fact that the corrected scoring methods accounts for the negative bias that is proposed to be at play here seems to suggest that computation using this scoring method (or, as Campbell et al., (2003) suggest, both corrected and Likert scoring) may produce more substantial evidence for the unidimensional model. This may be an appropriate path for further research to follow as this would help to conclude the validity (or lack thereof) of the uni-dimensional model. Perhaps such research could also investigate minimum respondent age for GHQ12 use, therefore helping to prevent inappropriate usage of questionnaires.

Therefore, it appears most prudent, based on the present findings, to suggest that the underlying factor struc-

ture is uni-dimensional. Furthermore, because of increased susceptibility to the effects of negative wording the GHQ 12 appears not to be suitable for use within an adolescent population without controlling for such wording effects. Finally as replication is paramount to factor analysis and a particular necessity here given the widespread controversy over the underlying structure, further research is required to elucidate the validity of these propositions.

References:

1. Bagozzi, R. P. (1993). An examination of the psychometric properties of measures of negative affect in the PANAS-X scales. *Journal of Personality and Social Psychology*, 65(4), 836-851.

2. Campbell, A., Walker, J., & Farrell, G. (2003). Confirmatory factor analysis of the GHQ-12: can I see that again?. *Australian and New Zealand Journal of Psychiatry*, 37(4), 475-483.

3. Cheung, Y. (2002). A confirmatory factor analysis of the 12-item General Health Questionnaire among older people. *International Journal of Geriatric Psychiatry*, 17(8), 739-744.

4. Clarke, D. M., & McKenzie, D. P. (1994). A caution on the use of cut-points applied to screening instruments or diagnostic criteria. *Journal of Psychiatric Research*, 28(2), 185-188.

5. Doi, Y., & Minowa, M. (2003). Factor structure of the 12-item General Health Questionnaire in the Japanese general adult population. *Psychiatry and Clinical Neurosciences*, 57(4), 379-383.

6. Goodchild, M. E., & Duncan-Jones, P. (1985). Chronicity and the General Health Questionnaire. British Journal of Psychiatry, 14655-61

7. Goldberg, D. P., Gater, R. R., Sartorius, N. N., & Ustun, T. B. (1997). The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 27(1), 191-197.

8. Goldberg, D. P., & Hillier, V. F. (1979). A scaled version of the General Health Questionnaire. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 9(1), 139-145.

9. Graetz, B. B. (1991). Multidimensional properties of the General Health Questionnaire. *Social Psychiatry and Psychiatric Epidemiology*, 26(3), 132-138.

10. Hankins, M. (2008). The factor structure of the twelve item General Health Questionnaire (GHQ-12): The result of negative phrasing?. *Clinical Practice and Epidemiology in Mental Health*, 4doi:10.1186/1745

11. Hardy, G. E., Shapiro, D. A., Haynes, C. E., & Rick, J. E. (1999). Validation of the General Health Questionnaire-12: Using a sample of employees from England's health care services. *Psychological Assessment*, 11(2), 159-165.

12. Jacobsen, B. K., Hasvold, T. T., Høyer, G. G., & Hansen, V. V. (1995). The General Health Questionnaire: How many times are

really necessary in population surveys?. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences*, 25(5), 957-961.

13. Kiliç, C. C., Rezaki, M. M., Rezaki, B. B., Kaplan, I. I., Özgen, G. G., Sağduyu, A. A., & Öztürk, M. O. (1997). General Health Questionnaire (GHQ12 & GHQ28): Psychometric properties and factor structure of the scales in a Turkish primary care sample. *Social Psychiatry and Psychiatric Epidemiology*, 32(6), 327-331.

14. Mäkikangas, A., Feldt, T., Kinnunen, U., Tolvanen, A., Kinnunen, M., & Pulkkinen, L. (2006). The factor structure and factorial invariance of the 12-item General Health Questionnaire (GHQ-12) across time: Evidence from two community-based samples. *Psychological Assessment*, 18(4), 444-451.

15. Politi PL, Piccinelli M, Wilkinson G. (1994) Reliability, validity and factor structure of the 12-item General Health Questionnaire among young males in Italy. *Acta Psychiatr. Scand.*; 90: 432–437.

16. Sarková, M., Nagyová, I., Katreniaková, Z., Gecková, A., Orosová, O., Middel, B., & van den Heuvel, W. (2006). Psychometric evaluation of the general health questionnaire-12 and rosenberg self-esteem scale in hungarian and slovak early adolescents. *Studia Psychologica*, 48(1), 69-79.

17. Schmitz, N. N., Kruse, J. J., Heckrath, C. C., Alberti, L. L., & Tress, W. W. (1999). Diagnosing mental disorders in primary care: The General Health Questionnaire (GHQ) and the Symptom Check List (SCL-90-R) as screening instruments. *Social Psychiatry and Psychiatric Epidemiology*, 34(7), 360-366.

18. Schmitt, N., & Stults, D. M. (1985). Factors defined by negatively keyed items: The result of careless respondents?. *Applied Psychological Measurement*, 9(4), 367-373.

19. Shevlin, M., & Adamson, G. (2005). Alternative Factor Models and Factorial Invariance of the GHQ-12: A Large Sample Analysis Using Confirmatory Factor Analysis. *Psychological Assessment*, 17(2), 231-236.

20. Tait, R. J., Hulse, G. K., & Robertson, S. I. (2002). A review of the validity of the General Health Questionnaire in adolescent populations. *Australian and New Zealand Journal of Psychiatry*, 36(4), 550-557.

21. Whaley, C. J., Morrison, D. L., Payne, R. L., Fritschi, L., & Wall, T. D. (2005). Chronicity of Psychological Strain in Occupational Settings and the Accuracy of the General Health Questionnaire. *Journal of Occupational Health Psychology*, 10(4), 310-319.

22.Willmott, S. A., Boardman, J. P., Henshaw, C. A., & Jones, P. W. (2008). The predictive power and psychometric properties of the General Health Questionnaire (GHQ-28). *Journal of Mental Health*, 17(4), 435-442.

23. Willmott, S. A., Boardman, J. P., Henshaw, C. A., & Jones, P. W. (2004). Understanding general health questionnaire (GHQ-28) score and its threshold. *Social Psychiatry and Psychiatric Epidemiology*, 39(8), 613-617.

24. Ye, S. (2009). Factor structure of the General Health Questionnaire (GHQ-12): The role of wording effects. *Personality and Individual Differences*, 46(2), 197-201.

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