systematically and comprehensively improve the way cognitive health is addressed is necessary. Currently, the public receives mixed messages about what cognitive health is,[2] and most professional schools devote minimal, if any, training to identify and address the treatment of cognitive impairment. Clinicians need education about the importance of intervention. This is essential to improving behavioral health services. Obstacles must be removed. Professional help for cognitive problems should be easier to find, and reimbursement for cognitive rehabilitation treatments needs to move beyond select diagnostic groups, given evidence of broader effectiveness. A national approach is necessary to build on the state efforts made to date. AJPH

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A. Medalia wrote the first draft of the editorial, and M. Erlich edited the editorial.

ACKNOWLEDGMENTS
THINKING WELL and Cognitive Remediation to Promote Recovery are supported by the New York State Office of Mental Health.

REFERENCES

1. Centers for Disease Control and Prevention. Healthy Aging. Available at: https://www.cdc.gov/aging/pdf/perceptions_of_cog_hlth_factsheet.pdf. Accessed September 9, 2016.

2. Warren-Findlow J, Price AE, Hochhalter AK, Laditka JN. Primary care providers' sources and preferences for cognitive health information in the United States. *Health Promot Int*. 2010; 25(4):464–473.

3. National Institute of Mental Health. Serious mental illness (SMI) among US adults. Available at: http://www.nimh.nih.gov/health/statistics/prevalence/serious-mental-illness-smi-among-us-adults.shtml. Accessed September 9, 2016.

4. Kurtz M. Cognitive remediation for psychological disorders: an overview. In: Medalia A, Bowie CR, eds. *Cognitive Remediation to Improve Functional Outcomes*. New York, NY: Oxford University Press; 2016:1–23.

5. Keshavan MS, Vinogradov S, Rumsey J, Sherrill J, Wagner A. Cognitive training in mental disorders: update and future directions. *Am J Psychiatry*. 2014;171(5): 510–522.

6. Keefe RSE, Bilder RM, Davis SM, et al. Neurocognitive effects of antipsychotic medications in patients with chronic schizophrenia in the CATIE trial. *Arch Gen Psychiatry*. 2007;64: 633–647.

7. Medalia A, Saperstein AM. Does cognitive remediation for schizophrenia improve functional outcomes? *Curr Opin Psychiatry*. 2013;26:151–157.

A Course on Religion and Public Health at Harvard

Research has gradually accumulated suggesting that religious participation is a powerful social determinant of health.[1–3] The role of religion in shaping health is given relatively little attention in most public health curricula today. When religion is discussed, it is often in the context of being an impediment to public health progress. However, the research, which has become increasingly rigorous, suggests that religious participation in general, and religious service attendance in particular, is a powerful health resource affecting outcomes ranging from longevity and depression to cancer survival and suicide. To neglect it in discussions of public health and social determinants of health is to miss an important aspect of life that appears to confer substantial health to large portions of the world's population.

Courses on religion and health are slowly beginning to emerge in public health curricula. Here we briefly describe a course that the first author has taught at the Harvard T. H. Chan School of Public Health. We also discuss potential lessons for public health from the rapid incorporation of courses on spirituality and health within medical school curricula over the past two decades.

COURSE ON RELIGION AND PUBLIC HEALTH AT HARVARD

The course on religion and public health at Harvard was first taught in the winter session beginning in January 2015. The first cohort of students attending the course included a Muslim student, a Buddhist, someone who identified both as Jewish and as spiritual but not religious, three Catholics, and a Protestant. About half of the participants had experience in health care as a nurse, physician, or social worker. Some took the course for credit and others audited. Two reference texts were used: Idler's *Religion as a Social Determinant of Health*[2] and Koenig et al.'s *Handbook of Religion and Health*.[1] Course content included a mixture of lecture and class discussion. Students were assessed through a series of critical responses to readings, class participation, and a final project on a topic of their choosing.

The course included a brief overview of the religious landscape of the world and the United States; religious conceptions of health; measures of religious involvement; empirical research suggesting protective associations between religious participation and longevity, depression, and suicide; methodological challenges in religion and health research; studies on forgiveness and gratitude; the role of religion and spirituality in end-of-life settings; and potential partnerships between religious and public health institutions.

MORTALITY

The empirical research review component of the course began with research on religious service attendance and mortality. Studies in the 1970s suggested a protective effect but were criticized for the possibility of reverse causation: that only those who were healthy could attend services. Subsequent studies controlled for various measures of baseline health,

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This article was accepted September 25, 2016.
doi: 10.2105/AJPH.2016.303501

and by the early 2000s the relationship was relatively firmly established.[1] Meta-analyses involving more rigorous inclusion criteria have reported the same, with those attending at least weekly having 0.73 (95% confidence interval = 0.63, 0.84) lower odds of dying during follow-up.[1,3]

MENTAL HEALTH AND METHODOLOGICAL CHALLENGES

The course also covered issues of religious participation and mental health. Further issues of research methodology were considered in this section. For example, although hundreds of studies have reported a seemingly protective association between religious service attendance and depression, the vast majority of these investigations have involved cross-sectional designs.[1] This is problematic because there is also evidence that depressed individuals are more likely to stop attending religious services,[3,4] rendering cross-sectional data essentially useless for assessing evidence of causality. Modern methods for causal inference for time-varying exposures, mediation, and sensitivity analysis have begun to be applied in religion and health research.[3–5]

Well-designed studies should use longitudinal data to assess associations between service attendance and subsequent depression onset, with control for baseline depression to rule out reverse causation. Of the hundreds of studies that have examined this association, only a few have been longitudinal with control for baseline depression.[1,3] However, even longitudinal studies have suggested a protective effect, with those attending weekly or more about 30% less likely to subsequently develop depression.[1,3,4]

SUICIDE

Existing cohort and case–control studies suggest an approximately three-fold to six-fold lower incidence of suicide among regular attendees of religious services, even after control for baseline depression.[1,3,5] In the context of suicide, religious affiliation appears to matter as well: Catholics are less likely than Protestants to commit suicide and both are less likely than those without an affiliation.[3,5] This recent research confirms Durkheim's observations in his 1897 book *Suicide: A Study in Sociology*, but with individual-level data.

RELIGION AND PUBLIC HEALTH PARTNERSHIPS

The course also involved a section on religion and public health partnerships, including best practices for church-based health interventions, a description of the role of faith-based organizations in providing health services, and potential tensions between public health institutions and religious or faith-based organizations. The partnership between Brazil's National AIDS Program and the Catholic Church in Brazil was used as a case study to illustrate the potential for partnerships to persist even in the midst of such tensions.[6] Settings in which religious participation can adversely affect health were also discussed, such as greater depression among unwed pregnant women attending services, higher suicide rates among children who are members of minority religions, or spiritual struggles leading to worse mental health.[3] Discussion was given to potential responses from religious communities to these adverse settings.

LESSONS FROM MEDICAL SCHOOLS

The integration of religion and spirituality within medical school curricula may offer some important lessons for public health. In 1995, only three of 126 US medical schools included spirituality in their curricula.[7] Around that time, Drs. David Larson and Dale Matthews began the Faith and Medicine Program under the National Institute for Healthcare Research (NIHR). Through financial support from the Templeton Foundation, flyers about the program were sent to all 126 US medical schools, and Dr. Matthews traveled to interested schools to give seminars on religion, spirituality, and health; the program provided grants to medical schools willing to develop a course dedicated to integrating spirituality into their curriculum.

By 1998, 27 grants had been awarded to medical schools such as Johns Hopkins, the University of Pennsylvania, the University of Chicago, Vanderbilt, and Harvard, among others. In that year, Dr. Christina Puchalski took over from Dr. Matthews as coordinator of the program at NIHR and later continued the program at the George Washington University Institute for Spirituality and Health. By 2010, a survey of medical school deans and faculty concluded that 90% of US medical schools had courses or content on religion, spirituality, and health.[1] In 2011, a set of national competencies in religion, spirituality, and health for medical education were developed.

Lessons from the experiences of medical schools suggest that curriculum expansion requires a solid research base, which is now clearly present; that financial support may be needed to expand the curriculum; and that a coordinated effort may be helpful in achieving substantial expansion. We provide in the Appendix (available as a supplement to the online version of this article at http://www.ajph.org) a more extensive description of the course and a somewhat more complete history of the incorporation of issues related to religion and spirituality within US medical school curricula. A more thorough research-oriented summary of the content is available elsewhere,[3] and further resources can be found in the books by Idler[2] and Koenig et al.[1]

PUBLIC HEALTH IMPACT

Public health impact is often assessed as a function of the prevalence of the exposure and of the size of the exposure effect. In the case of religious participation, the exposure is common: roughly 40% of Americans report attending religious services at least weekly. The research on religion and health also indicates that the effect sizes are relatively large. On these grounds, religious participation is an important social determinant of health. We believe that religious participation should be included more often in our thinking and research as to what shapes the public's health. We hope that this brief overview of the course at Harvard and the history of such courses in US medical schools might be helpful in the development of courses on

religion and health at schools of public health in the United States and elsewhere. AJPH

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Both authors contributed to the conceptualizing and writing of this article.

REFERENCES

1. Koenig HG, King DE, Carson VB. *Handbook of Religion and Health*. 2nd ed. Oxford, England: Oxford University Press; 2012.

2. Idler E. *Religion as a Social Determinant of Public Health*. New York, NY: Oxford University Press; 2014.

3. VanderWeele TJ. Religion and health: a synthesis. In: Peteet JR, Balboni MJ, eds. *Spirituality and Religion Within the Culture of Medicine: From Evidence to Practice*. New York, NY: Oxford University Press. Available at: http://pik.fas.harvard.edu/files/pik/files/chapter.pdf. Accessed October 14, 2016.

4. Li S, Okereke OI, Chang S-C, Kawachi I, VanderWeele TJ. Religious service attendance and lower depression among women—a prospective cohort study. *Ann Behav Med*. 2016;Epub ahead of print.

5. VanderWeele TJ, Li S, Tsai A, Kawachi I. Association between religious service attendance and lower suicide rates among US women. *JAMA Psychiatry*. 2016;73(8):845–851.

6. Murray LR, Garcia J, Munoz-Laboy M, Parker RG. Strange bedfellows: the Catholic Church and Brazilian National AIDS Program in the response to HIV/AIDS in Brazil. *Soc Sci Med*. 2011;72(6):945–952.

7. Puchalski CM, Blatt B, Kogan M, Butler A. Spirituality and health: the development of a field. *Acad Med*. 2014;89(1):10–16.