



INTERPRETING RESPONSE RATE
FOR THE 2010 DEPARTMENT OF DEFENSE
COMPREHENSIVE REVIEW SURVEY:

A RESEARCH MEMO

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Interpreting Response Rate for the 2010 Department of Defense Comprehensive Review Survey: A Research Memo

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November 28, 2010 – The 2010 Department of Defense (DoD) Comprehensive Review Survey of Uniformed Duty and Reserve Service Members was conducted to assess troops’ attitudes toward gay and lesbian service members and toward “Don’t Ask, Don’t Tell” (DADT). Media reports indicate that of the 400,000 troops who were emailed the survey, approximately 110,000 responded, yielding a response rate of 28%.¹ This research memo addresses two questions regarding this reported response rate: 1) How does this response rate compare to response rates in other surveys in the general population and in the military? 2) What are the implications of this response rate for interpreting the survey’s results?

1. How does the DoD Comprehensive Review Survey response rate compare with response rates in other surveys?

1.1. The DoD Comprehensive Review Survey response rate is within the range of response rates typical for web-based surveys.

Across survey modes (e.g., mail, email), response rates of surveys in the general population have been decreasing over time; this trend is also observed in surveys of military service members.² Thus, response rates for recent surveys in the general population and in the military can be expected to be lower than response rates for older surveys. Furthermore, there is evidence that

1 For example, see Larry Shaughnessy, “Pentagon to Investigate Leak of ‘Don’t Ask, Don’t Tell’ Survey,” CNN, November 12, 2010, http://articles.cnn.com/2010-11-12/us/gates.dont.ask.leak_1_survey-secretary-gates-leak?_s=PM:US

2 Stephen B. Knouse, “Improving Return Rates on Equal Opportunity Surveys,” Defense Equal Opportunity Management Institute (DEOMI) Report No. 02-02 (Patrick Air Force Base, FL: Summer, 2002); Carol E. Newell, Paul Rosenfeld, Rorie N. Harris, and Regina L. Hindelang, “Reasons for Nonresponse on U.S. Navy Surveys: A Closer Look,” *Military Psychology*, 16 (2004): 265-276.

web surveys yield lower response rates than other survey modes.³ Two meta-analyses⁴ of response rates in web surveys versus other survey modes revealed web survey median response rates of 29% (across 30 web surveys) and 27% (across 39 web surveys).⁵ Comparisons of various survey modes (e.g., mail, email, email and postcard) find that the email-only mode of survey delivery yields the lowest response rates. In one study, the various survey modes yielded response rates of 21% to 32%, with the email-only mode resulting in a 21% response rate.⁶ In another study, the various survey modes yielded response rates of 17% to 24%, with the email-only mode resulting in a response rate of 20%.⁷ Thus, the 28% response rate of the email-only delivered DoD Comprehensive Review Survey compares favorably relative to other web-based surveys.

1.2. The DoD Comprehensive Review Survey response rate is within the range of response rates for surveys of military service members.

Several reviews of military surveys demonstrate a trend of decreasing response rates over time, with most recent response rates approximating 30%. For example, response rates to the Navy Equal Opportunity/Sexual Harassment (NEOSH) Survey were 60% in 1989, 40% in 1995, and 30% in 1990; response rates for the Navy-wide Personnel Survey were 52% in 1990, 45% in 1996, 33% in 2000, and 34% in 2008.⁸ Similarly, since 2003, response rates to the Status of Forces surveys have ranged between 28% and 40% for the Active Duty Survey and between 25%

³ Weimiao Fan, and Zheng Yan, "Factors Affecting Response Rates of the Web Survey: A Systematic Review," *Computers in Human Behavior*, 26 (2010): 132-139; Katja L. Manfreda, Michael Bosnjak, Jernej Berzelak, Iris Haas, and Vasja Vehovar, "Web Surveys Versus Other Survey Modes: A Meta-analysis Comparing Response Rates," *International Journal of Market Research*, 50 (2008): 79-104; Tse-Hua Shih, and Xitao Fan, "Comparing Response Rates from Web and Mail Surveys: A Meta-Analysis," *Field Methods*, 20 (2008): 249-271.

⁴ Meta-analysis is a statistical technique for summarizing findings from multiple independent studies.

⁵ Katja L. Manfreda et al., "Web Surveys Versus Other Survey Modes;" Tse-Hua Shih, and Xitao Fan, "Comparing Response Rates from Web and Mail Surveys."

⁶ Michael D. Kaplowitz, Timothy D. Hadlock, and Ralph Levine, "A Comparison of Web and Mail Survey Response Rates," *Public Opinion Quarterly*, 68 (2004): 94-101.

⁷ Linda J. Sax, Shannon K. Gilmartin, and Alyssa N. Bryant, "Assessing Response Rates and Nonresponse Bias in Web and Paper Surveys," *Research in Higher Education*, 44 (2003): 409-432.

and 42% for the Reserve Survey; importantly, the U.S. Government Accountability Office (GAO) has deemed the results of these Status of Forces surveys to be generally reliable for their purposes, although GAO recommends that in the future, military researchers conduct statistical tests to determine whether non-response rates are leading to non-response bias.⁹

More recently, using a combination of web-based and mail survey modalities, Defense Manpower Data Center (DMDC) surveys of Workplace and Equal Opportunity yielded a response rate of 39% for Active Duty Members in 2005 and a response rate of 32% for Reserve Component Members in 2007; surveys of Workplace and Gender Relations yielded a response rate of 30% for Active Duty Members in 2006 and a response rate of 34% for Reserve Component Members in 2008.¹⁰

Also of relevance to the DoD Comprehensive Review Survey, prior studies of attitudes toward gay and lesbian people conducted among Naval Postgraduate School officers point to decreasing response rates from 60% in 1994, to 38% in 1996, to 36% in 1999; and a 1999 survey of such attitudes among enlisted students at the Defense Language Institute yielded a response rate of 13%.¹¹ These studies used mail and other “hard copy” modes of survey delivery.

⁸ Carol E. Newell et al., “Reasons for Nonresponse on U.S. Navy Surveys;” Kimberly P. Whittam, *Navy-wide Personnel Survey (NPS) 2008: Summary of Survey Results*, Navy Personnel Research, Studies, and Technology (NPRST) Report No. NPRST-TN-10-2 (Millington, TN: November, 2009).

⁹ United States Government Accountability Office (GAO), *Human Capitol: Quality of DOD Status of Forces Surveys Could be Improved By Performing Nonresponse Analysis of Results*, GAO-10-751R (Washington, D.C.: July 12, 2010).

¹⁰ Rachel N. Lipari, and Paul J. Cook, *2005 Workplace and Equal Opportunity Survey of Active-Duty Members*, Defense Manpower Data Center (DMDC) Report No. 2007-019 (Arlington, VA: July, 2007); Rachel N. Lipari, Paul J. Cook, Lindsay M. Rock, and Kenneth Matos, *2006 Gender Relations Survey of Active Duty Members*, Report No. 2007-022 (Arlington, VA: March, 2008); Kenneth Matos, and Rachel N. Lipari, *2007 Workplace and Equal Opportunity Survey of Reserve Component Members*, DMDC Report No. 2007-039 (Arlington, VA: January, 2008); Lindsay M. Rock, and Rachel N. Lipari, *2008 Gender Relations Survey of Reserve Component Members*, DMDC Report No. 2008-043 (Arlington, VA: March, 2009).

¹¹ John W. Bicknell, Jr., “Study of Naval Officers’ Attitudes Toward Homosexuals in the Military” (master’s thesis, Naval Postgraduate School, 2000).

The 28% response rate of the DoD Comprehensive Review Survey of active duty and activated reserve service members is within the ranges of response rates for these recent surveys, particularly considering its web-based only survey mode and the continuing trend toward lower response rates over time.

2. What are the implications of the DoD Comprehensive Review Survey response rate for interpreting the survey results?

2.1. The response rate for a survey is not equivalent to validity or bias in survey results.

The response rate of a survey reflects the proportion of individuals who choose to participate in the survey relative to the total number of individuals who were invited to participate.

Nonresponse rate, therefore, is the proportion of invited individuals who choose not to participate in the survey. *Nonresponse bias* reflects the extent to which those who participate in a survey (i.e., responders) are different on the survey variables from those who choose not to participate (i.e., nonresponders).

A sizeable body of research has evaluated whether nonresponse rate is associated with nonresponse bias. Recent reviews and meta-analyses of this association determine that nonresponse rate of a survey is a poor predictor of nonresponse bias; that is, low response rates are not tantamount to bias.¹² This is because factors that are known to be associated with response rates – for example, use of advanced notifications about the survey, follow-up invitations to nonresponders, characteristics of the interviewer – are not necessarily related to the survey variables.¹³ In fact, some attempts to increase response rate, such as offering incentives, might actually increase nonresponse bias.¹⁴ Furthermore, a series of PEW Center studies demonstrated that standard surveys and high response rate surveys yielded indistinguishable results on 77 of 84

12 Robert M. Groves, “Nonresponse Rates and Nonresponse Bias in Household Surveys,” *Public Opinion Quarterly*, 70 (2006): 646-675; Robert M. Groves, and Emilia Peytcheva, “The Impact of Nonresponse Rates on Nonresponse Bias: A Meta-analysis,” *Public Opinion Quarterly*, 72 (2008): 167-189.

13! Ibid.

14! Ibid.

attitude and behavior items and yielded only small differences on the remaining 7 items.¹⁵ Thus, empirical investigations find that response rate is not indicative of validity or bias in survey results.

2.2. Research on the impact of response rates suggests low concern about nonresponse bias in the DoD Comprehensive Review Survey.

Research on response rates indicates that the level of nonresponse bias tends to be lower in surveys that are self-administered (versus administered by an interviewer) and in surveys administered to members of a specific organization (versus to the general population).¹⁶ Both of these findings suggest lower nonresponse bias in the DoD Comprehensive Review Survey given that it was self-administered to members of a specific organization (i.e., military service members). Furthermore, in military surveys, there is evidence to suggest that reasons for nonparticipation are not specific to the focus of the survey. For example, when NIOSH nonresponders were asked about reasons for nonresponse, their top reasons reflected the beliefs that Navy personnel are too busy to participate, responding to surveys is unimportant and inconsequential, and that surveys are too time consuming. By contrast, the NIOSH's focus – that is, views about sexual harassment and equal opportunity – was the least frequently selected reason for nonresponse.¹⁷ This finding is informative for the DoD Comprehensive Review Survey because views toward gender equality are linked consistently with views toward gay and lesbian individuals.¹⁸

15 Scott Keeter, Courtney Kennedy, Michael Dimock, Jonathan Best, and Peyton Craighill, "Gauging the Impact of Growing Nonresponse on Estimates from a National RDD Telephone Survey," *Public Opinion Quarterly*, 70 (2006): 759-779.

16 Robert M. Groves, and Emilia Peytcheva, "The Impact of Nonresponse Rates on Nonresponse Bias."

17 Carol E. Newell et al., "Reasons for Nonresponse on U.S. Navy Surveys."

18 For example, see Melinda G. Goodman and Bonnie Moradi, "Attitudes and Behaviors Toward Lesbian and Gay Persons: Critical Correlates and Mediated Relations," *Journal of Counseling Psychology*, 55 (2008): 371-384; Gregory M. Herek, "Heterosexuals' Attitudes Toward Lesbians and Gay men: Correlates and Gender Differences," *Journal of Sex Research*, 25 (1988): 451-477; Bernard E. Whitley, Jr., "Gender-Role Variables and Attitudes Toward Homosexuality," *Sex Roles*, 45 (2001): 691-721; Bernard E. Whitley, Jr. and Stefania Aegisdottir, "The gender Belief System, Authoritarianism, Social Dominance Orientation, and Heterosexuals' Attitudes Toward Lesbians and Gay Men," *Sex Roles*, 42 (2000): 947-967.

Summary

The DoD Comprehensive Review Survey response rate is within the range of response rates for web-based surveys and within the range of response rates for recent surveys of military service members. Nonresponse rate of a survey is a poor predictor of nonresponse bias and low response rates are not tantamount to bias. Research on the impact of response rates suggests low concern about nonresponse bias in the DoD Comprehensive Review Survey.