

THEORETICAL AND COMPUTATIONAL BIOPHYSICS GROUP

2003 BioCoRE SURVEY REPORT

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EXECUTIVE SUMMARY

The BioCoRE 2003 Survey was announced on March 17, 2003 to 165 registered users and ran through April 14 of that year. Survey questions examined user satisfaction, the impact of the collaboratory on work quality, and user ratings of existing and planned features; a few demographic questions were asked as well.

- A total of 44 responses were returned by the survey, yielding a response rate of 26.7%.
- Survey results indicate that the majority of BioCoRE users are affiliated with academic institutions (95.5%) and use BioCoRE for research purposes (88.6%), with more than half indicating research funded at least in part by NIH (52.3%). Most BioCoRE users are the sole BioCoRE user at their site (42.9%), use local computer resources to run large computational jobs (70.5%), and consider themselves proficient software users (72.7%).
- A majority of users are satisfied with BioCoRE – 60.5% agreed or strongly agreed with the statement “I am satisfied with BioCoRE”.
- BioCoRE was judged to have a positive impact on work quality – 59.5% of respondents agreed or strongly agreed with the statement “I am satisfied with the quality of the work I do within BioCoRE” .
- A majority of respondents, 54.8%, agreed or strongly agreed with the statement “The BioCoRE environment extends my workspace”.
- While a slightly greater proportion of users with no NIH funds expressed satisfaction with BioCoRE and its positive impact on their work quality, no significant differences in ratings by funding source (NIH, other) were found.

OVERVIEW

BioCoRE (Biological Collaborative Research Environment) is a collaborative work environment for biomedical research, research management and training. A resource-centered platform, BioCoRE offers scientists, working together or alone, a seamless interface to a broad range of local and remote technologies such as discipline-specific and general tools, data, and visualization solutions. The BioCoRE home page, <http://www.ks.uiuc.edu/Research/BioCoRE/>, at the TCBG web site provides more information about the program. The BioCoRE 2003 Survey is part of an ongoing effort (a similar survey was conducted in 2002) to ensure that BioCoRE is up to date, relevant, and of high quality by collecting and analyzing user opinion about the application. BioCoRE users were identified via registration records, and contacted via e-mail with a request that they complete an on-line survey about BioCoRE (see locations below for a copy of the survey) during March-April of 2003. The following report details the results and administration of the survey.

BioCoRE 2003 Survey (complete copy)

A link to the survey form the users completed is available here. Note that for analysis, interpretation and review purposes that all references to the items within the report are based on the numbering of the items as was used in the original survey.

[BioCoRE 2003 Survey](http://www.ks.uiuc.edu/Research/biocore/spring2003survey/txt/survey2003.html)

<http://www.ks.uiuc.edu/Research/biocore/spring2003survey/txt/survey2003.html>

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BIOCORE USER PROFILE

The user profile characteristics are illustrated below:

- 95.5% of users have academic affiliations
- 52.3% are funded at least partially by NIH
- 88.6% use BioCoRE for research purposes
- 42.9% are the sole user of BioCoRE at their site
- 70.5% indicated they run large computational jobs using local resources.
- 72.7% identified themselves as proficient in the use of software.

Figure 1: BioCoRE User Characteristics

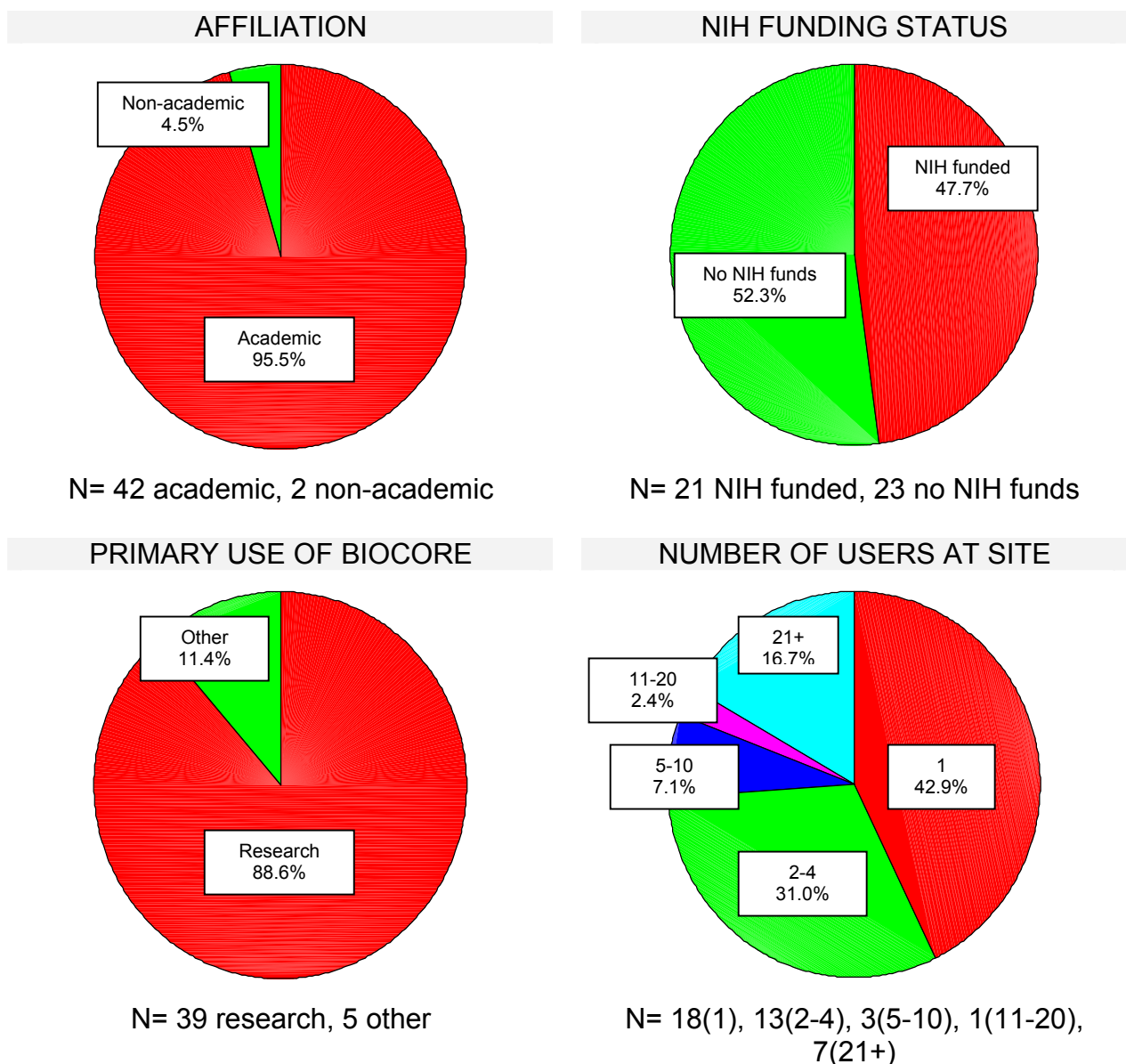
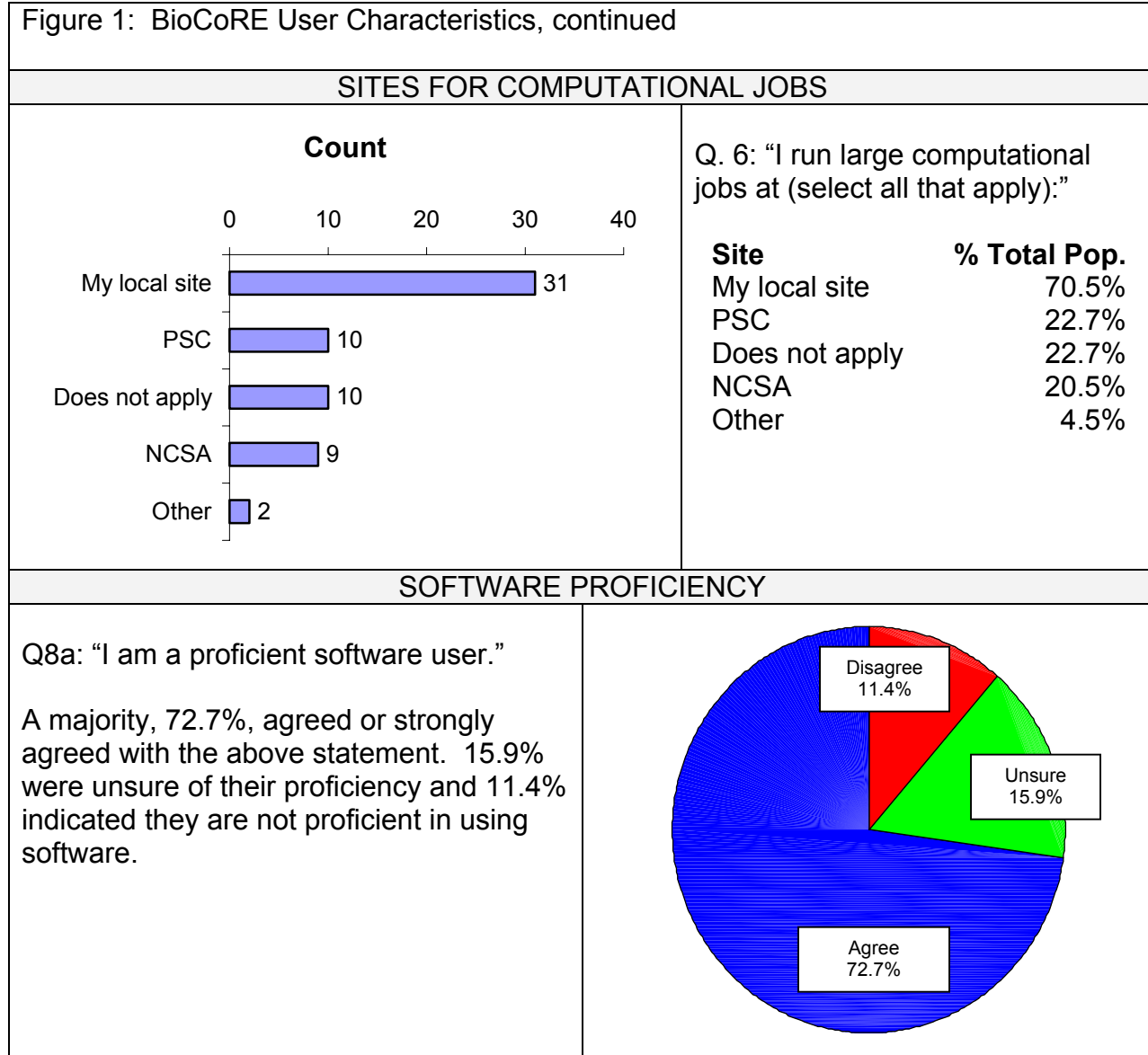
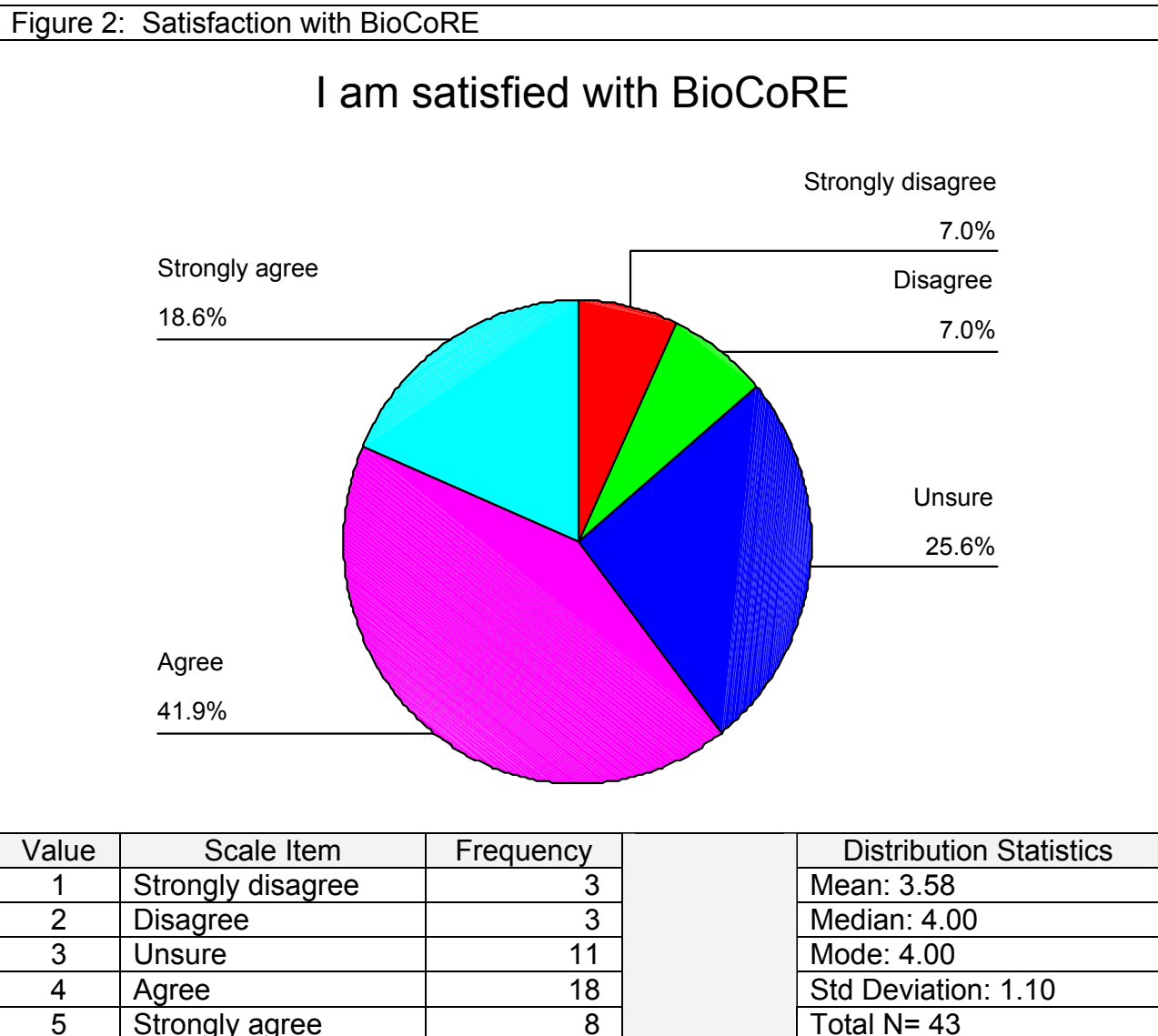


Figure 1: BioCoRE User Characteristics, continued



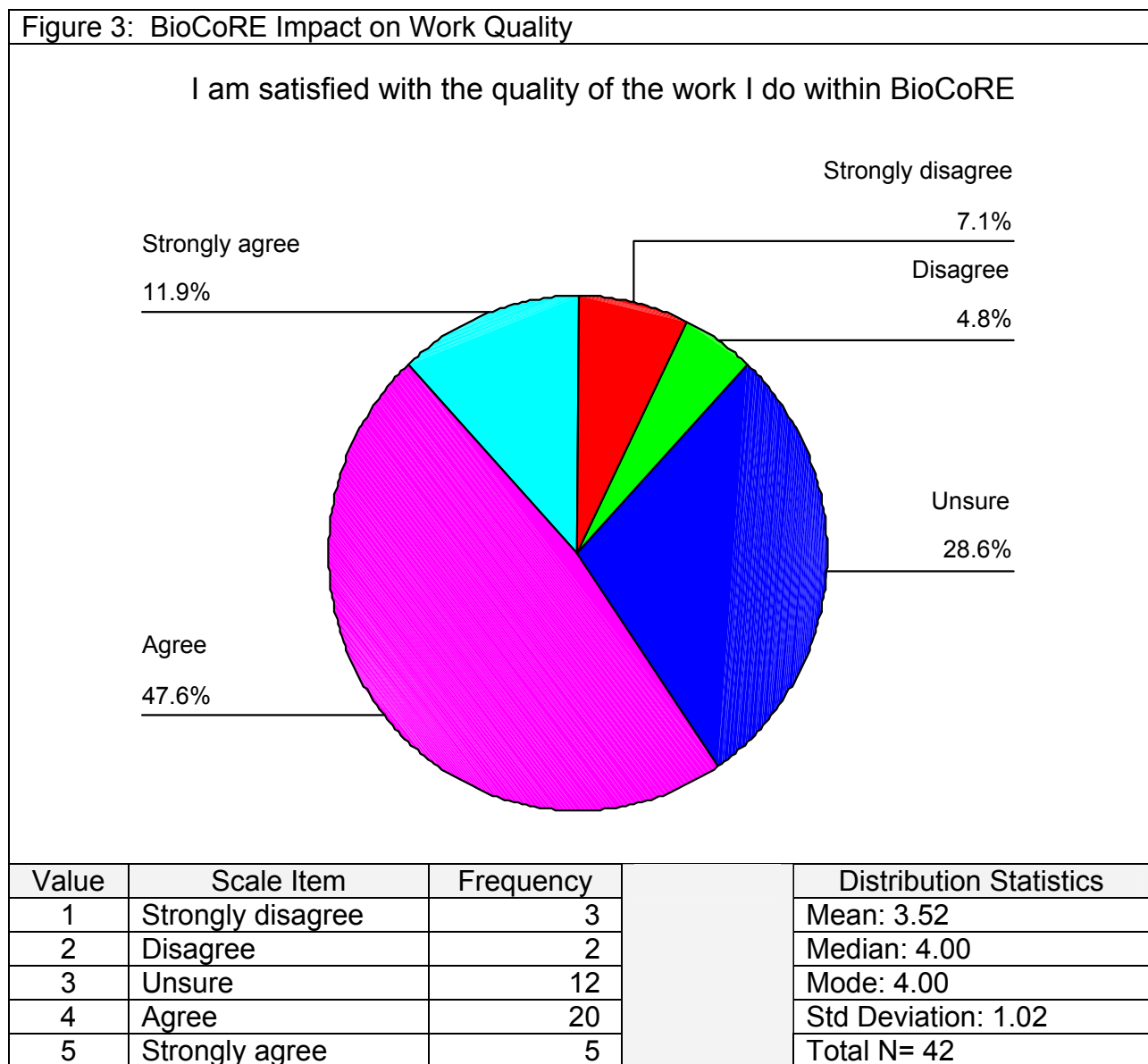
RATINGS OF SATISFACTION

- A majority of users are satisfied with BioCoRE – 60.5% agreed or strongly agreed with the statement “I am satisfied with BioCoRE” (Q11). See Fig. 2.
- Mean satisfaction was 3.58 on a 5-point scale (1=strongly disagree, 5=strongly agree). No significant difference was found in mean satisfaction ratings between the 2002 (M=3.68) and 2003 surveys. See Fig. 2.



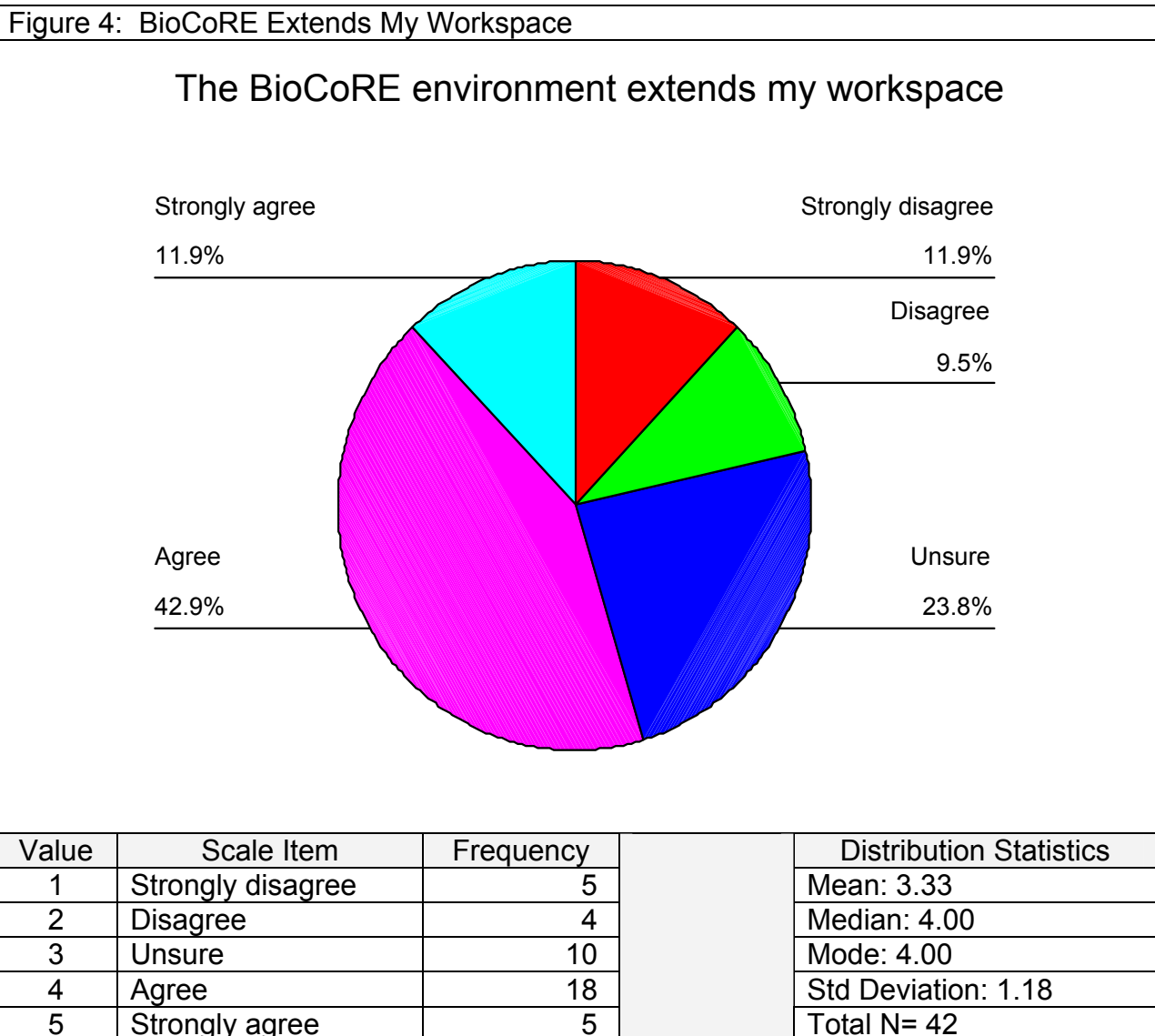
RATINGS OF IMPACT ON WORK QUALITY

- BioCoRE was judged to have a positive impact on work quality – 59.5% of respondents agreed or strongly agreed with the statement “I am satisfied with the quality of the work I do within BioCoRE” (Q12). See Fig. 3.
- The mean response was 3.52 on a 5-point scale (1=strongly disagree, 5=strongly agree). See Fig. 3.



RATINGS OF 'BIOCORE EXTENDS MY WORKSPACE'

- BioCoRE’s goal is to provide users seamless interaction with resources meant to enhance collaborative activities, and as such should provide a sense of access to an expanded work environment. A majority of respondents, 54.8%, agreed or strongly agreed with the statement “The BioCoRE environment extends my workspace” (Q10). See Fig. 4.
- The mean response was 3.33 on a 5-point scale (1=strongly disagree, 5=strongly agree). See Fig. 4.



IMPORTANCE OF EXISTING FEATURES

- Users were asked to rate the importance of existing features of BioCoRE as a means of identifying those aspects of the collaboratory that should be a priority for development. In Q7, a list of 12 BioCoRE features was provided to respondents, who were asked to rate their agreement with the statement “The following BioCoRE feature is important for my work” using a 5-point scale (1-strongly disagree, 5-strongly agree).
- The three most important BioCoRE features are: posting and reading Message Board entries (M=3.21), chatting with the Control Panel (M=3.07), and sharing molecular views with VMD via BioCoRE (M=2.95). See Figs. 5A, 5B.

Figure 5A: Ratings of Importance of Existing Features

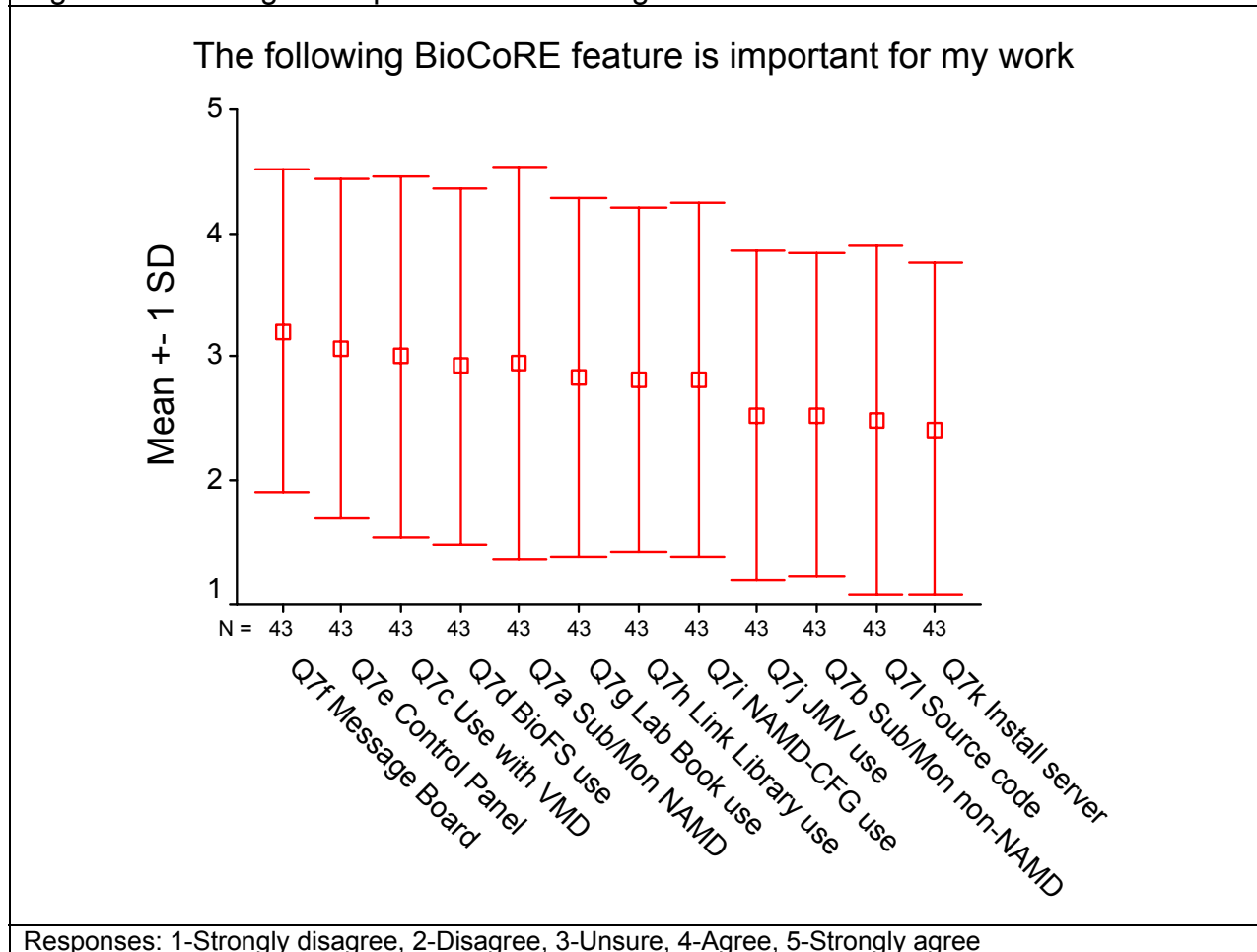


Figure 5B: Importance of Existing BioCoRE Features		
Question Stem	Mean [†]	Std Deviation [†]
Q7 The following BioCoRE feature is important for my work:		
Q7f Posting and reading Message Board entries	3.21	1.30
Q7e Chatting with the BioCoRE Control Panel	3.07	1.37
Q7c Sharing molecular views with VMD via BioCoRE	2.95	1.48
Q7d Sharing files via the BioFS	2.93	1.44
Q7a Submission and monitoring of NAMD jobs	2.91	1.60
Q7g Maintaining a BioCoRE Lab Book	2.84	1.45
Q7h Sharing web links with project members via the Website Library	2.81	1.38
Q7i Configuring simulations with the NAMD Configuration File Generator	2.81	1.44
Q7j Viewing molecular structures in the BioFS with JMV	2.53	1.33
Q7b Submission and monitoring of computational jobs other than NAMD	2.50	1.30
Q7l Having access to the BioCoRE source code	2.49	1.40
Q7k Installing my own BioCoRE server	2.42	1.35

[†]Figures based on a 5-point scale, with responses: 1-Strongly disagree, 2-Disagree, 3-Unsure, 4-Agree, 5-Strongly agree.

RATINGS OF SUPPORT, DOCUMENTATION, AND OVERALL USABILITY

- Responses to usability, support and documentation items (Q8) indicated why respondents use BioCoRE, and their agreement with statements about specific aspects of the program.
- The three highest rated qualities are: the BioCoRE support team is responsive to my needs (M=3.90), it was easy to launch the BioCoRE Control Panel (M=3.86), and the help documentation in BioCoRE is useful (M=3.74).

Figure 6A: Support, Documentation, and Overall Usability

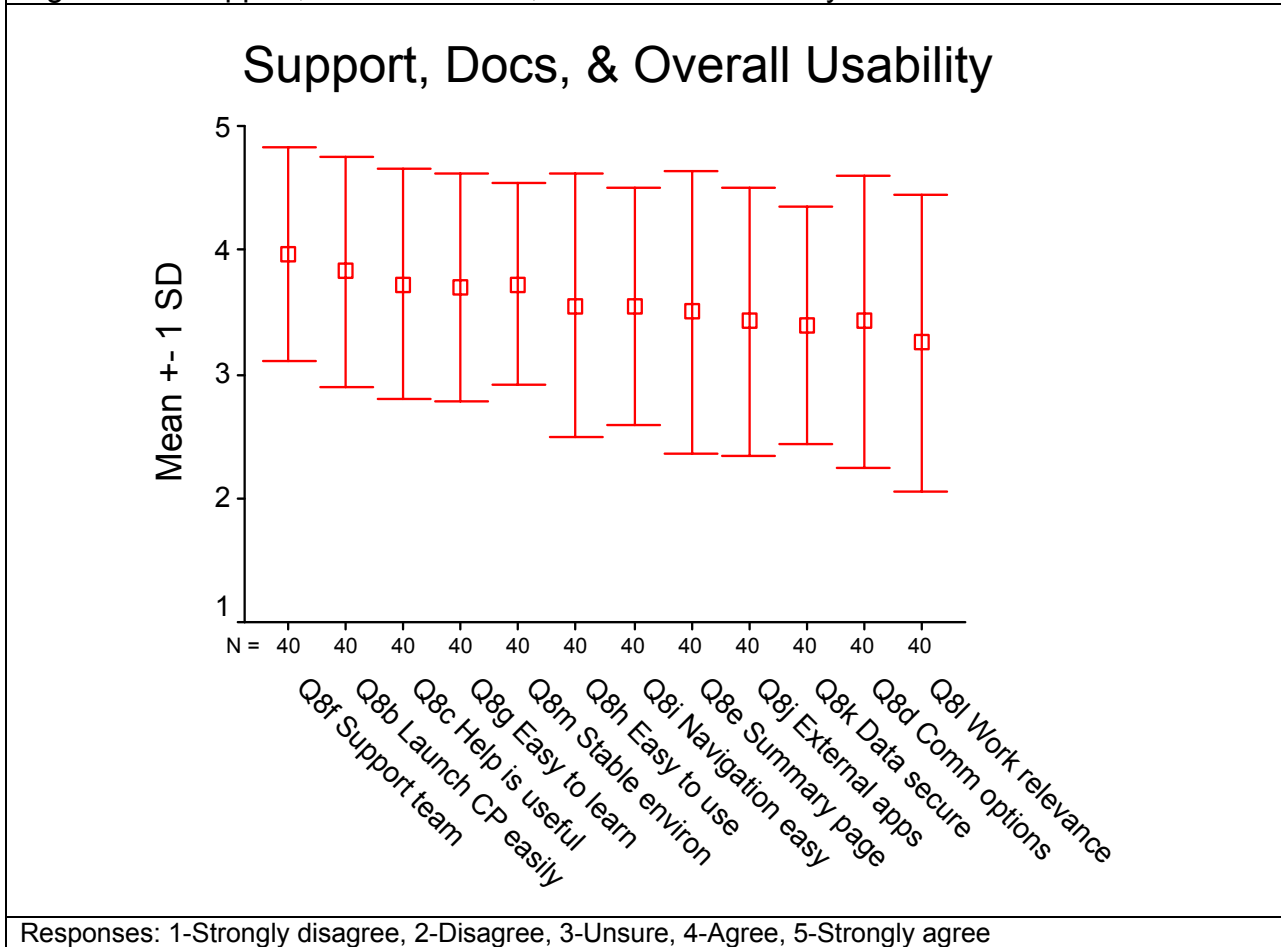


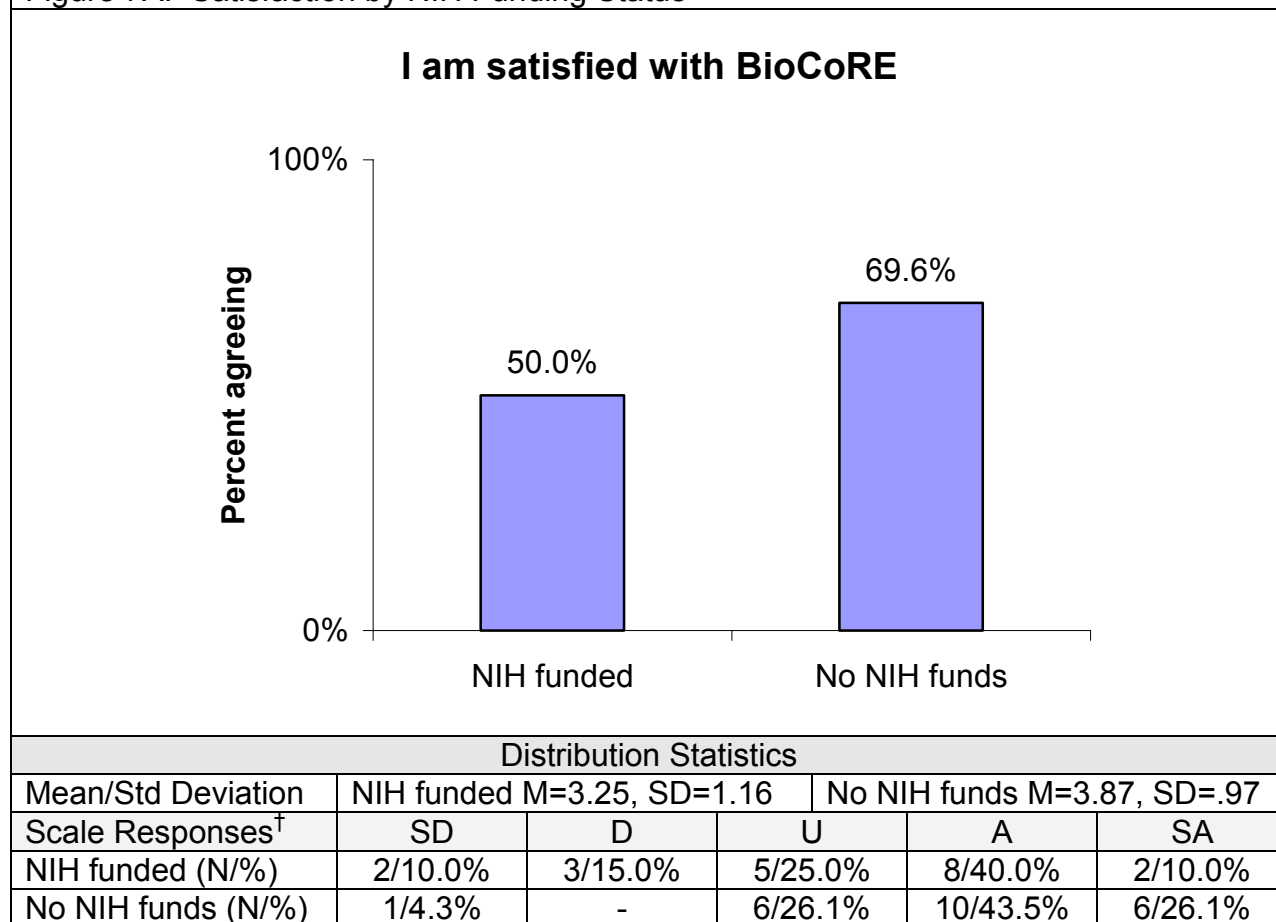
Figure 6B: Support, Documentation, and Overall Usability		
Question Stem	Mean [†]	Std Deviation [†]
Q8 Rate your agreement with each the following statements:		
Q8f The BioCoRE support team is responsive to my needs	3.90	.96
Q8b It was easy to launch the BioCoRE Control Panel	3.86	.94
Q8c The Help documentation in BioCoRE is useful	3.74	.93
Q8g It was easy to learn to use BioCoRE	3.70	1.00
Q8m BioCoRE is a stable environment	3.69	.92
Q8h Using BioCoRE is easy	3.57	1.13
Q8i I can easily navigate within BioCoRE	3.57	1.04
Q8e The BioCoRE summary page offers me the information I need about that status of my project	3.52	1.13
Q8j External applications (currently VMD and NAMD) are well integrated into BioCoRE	3.44	1.10
Q8k All my data is secure within BioCoRE	3.40	.99
Q8d BioCoRE provides me with the communication options I need	3.39	1.19
Q8l BioCoRE is relevant to my work	3.23	1.23

[†]Figures based on a 5-point scale, with responses: 1-Strongly disagree, 2-Disagree, 3-Unsure, 4-Agree, 5-Strongly agree.

RATINGS BY NIH FUNDING STATUS

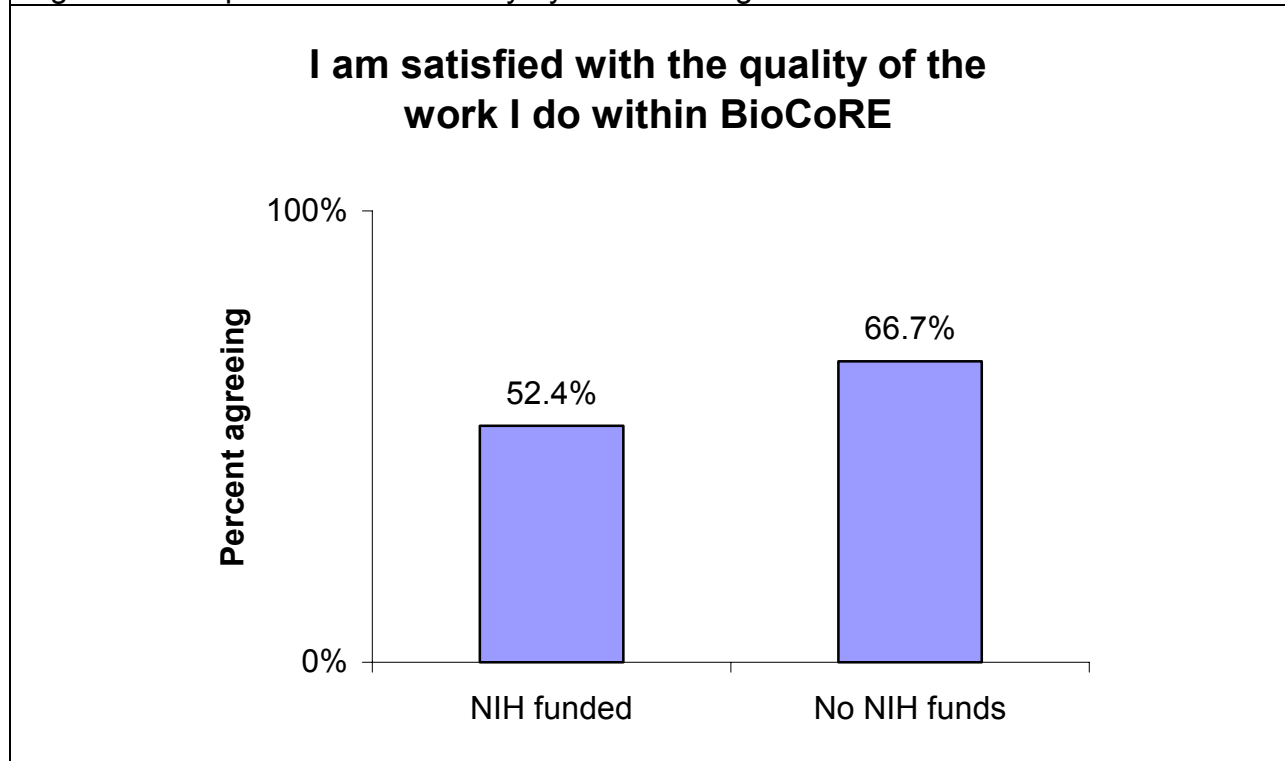
- Users were asked to answer ‘yes’ or ‘no’ to the question “The work I do with BioCoRE is funded (at least partially) by NIH” (Q3).
- Half of NIH funded users (50.0%) and a majority of those with no NIH funds agreed or strongly agreed with the statement “I am satisfied with BioCoRE” (Q11). Statistical analysis found no significant difference in the mean rankings by NIH funded users (M=3.25) and users with no NIH funds (M=3.87). See Fig. 7A.
- A majority of both NIH funded (52.4%) and those with no NIH funds (66.7%) agreed or strongly agreed with the statement “I am satisfied with the quality of the work I do within BioCoRE” (Q12). Statistical analysis found no significant difference in the mean rankings by NIH funded users (M=3.38) and users with no NIH funds (M=3.67). See Fig. 7B.

Figure 7A: Satisfaction by NIH Funding Status



[†]Responses: 1-Strongly disagree, 2-Disagree, 3-Unsure, 4-Agree, 5-Strongly agree.
Total N: NIH funded, 20; no NIH funds, 23.

Figure 7B: Impact on Work Quality by NIH Funding Status



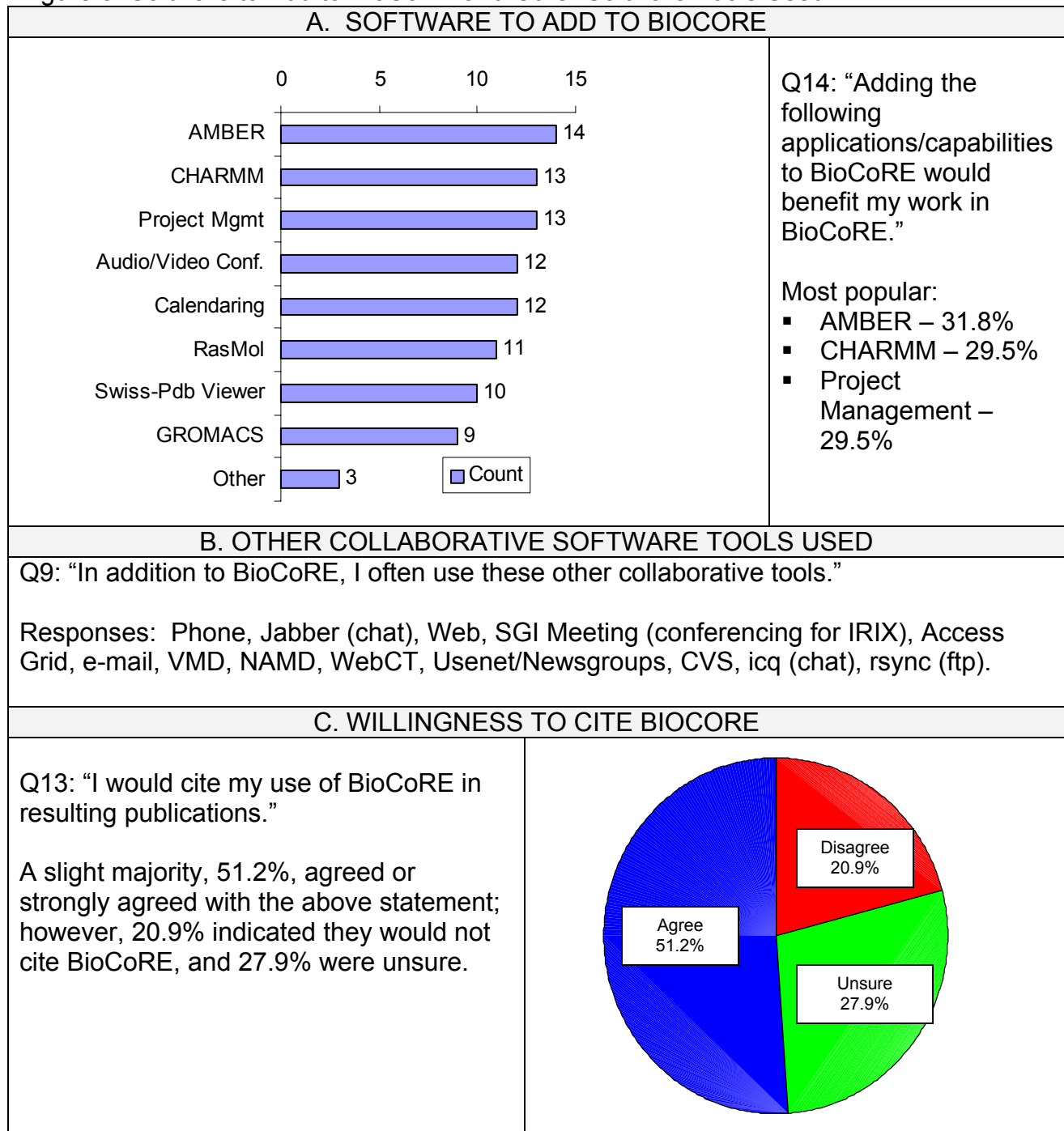
Distribution Statistics					
Mean/Std Deviation	NIH funded M=3.38, SD=1.07			No NIH funds M=3.67, SD=.97	
Scale Responses [†]	SD	D	U	A	SA
NIH funded (N/%)	2/9.5%	1/4.8%	7/33.3%	9/42.9%	2/9.5%
No NIH funds (N/%)	1/4.8	1/4.8	5/23.8%	11/52.4%	3/14.3%

[†]Responses: 1-Strongly disagree, 2-Disagree, 3-Unsure, 4-Agree, 5-Strongly agree.
 Total N: NIH funded, 21; no NIH funds, 21.

SOFTWARE USED AND TO ADD, WILLINGNESS TO CITE USE OF BIOCORE

- One question on the survey asked about what software applications should be added to BioCoRE, another question asked about collaborative tools used by respondents, and a third question asked about willingness to cite BioCoRE.

Figure 8: Software to Add to BioCoRE and Other Software Tools Used



APPENDIX: SURVEY METHODOLOGY

Following are details about the administration of the survey, including survey method, target population, survey schedule and response rates, sample validity, and questions used on the survey.

Survey Method

Population members received an e-mail solicitation asking them to complete an on-line survey, with the link to the survey containing information about the user. Participants were asked to complete all items on the survey form and submit their responses; upon submission, participants were to complete any items they had skipped, with an option to submit without doing so. After submission, users were thanked for their participation.

Target Population

The target population was defined as users who had logged in at least three times since November 1, 2000. A total of 176 users met these criteria; however, 11 e-mail addresses were bounced back or otherwise failed, and were thus not considered part of the final population number of 165.

Survey Schedule and Response Rates

	Dates/Activities			
	Initial Solicitation	First Reminder	Second Reminder	Closing/Totals
	March 17	April 7	April 14	April 18
Number receiving by date	165	156	135	-
Number of responses to next date	9	22	16	47
Response rate for this population	5.5%	13.3%	9.7%	28.5%%

Data Editing

Those responses that were considered incomplete were deleted from our dataset. The deletions fell into two categories: Unresponsive and duplicates.

- Unresponsive records were those instances in which respondents did not answer most of the questions in the survey, specifically those cases in which more than 28% of the questions were not answered.
- Duplicates were those instances in which there was more than one response for a person, based on their e-mail address.

Deletions left 44 valid records for analyses, as shown in the table below.

Deleted Survey Responses			
Deletions category	Unresponsive	Duplicates	Total
	3	0	3
Number of records in dataset after removing deletions			44

- The final response rate, after accounting for deleted records, is 26.7%.

Sample Validity

The validity of a sample size for representing an entire population is always a concern in survey research. Sample size calculators can provide measures of confidence intervals (+/- figures, i.e. 'margin of error') and confidence level measures (how certain you can be that an answer falls within a confidence interval). For a sample of 44 and a population of 165, using a standard test percentage of 50%, sample size calculations indicate that it can be said with 95% confidence that a given result for a question falls within a +/-12% confidence interval. (Figures were generated using Survey System sample size calculator: <http://www.surveysystem.com/sscalc.htm>).

Question Sets

To aid in interpreting survey results, it is useful to view the question stems viewed by survey participants. Below are the survey questions, grouped by purpose:

Demographic/User Information Questions:

Q. #	Topic	Question Stem	Scale
1	E-mail address	Auto-completed, but users could change	Text box
2	Affiliation	Academic, Government, Industry, Other (specify)	Select one, Text box (other)
3	Funding	My work in BioCoRE is funded (at least partially) by NIH	Select Yes or No
4	BioCoRE use	I primarily use BioCoRE for: Research, teaching, business, Personal	Select one
5	Site use	The number of people using BioCoRE at my site is: 1, 2-4, 5-10, 11-20, 20+	Select one
6	Comp job sites	I run large computational jobs at (select all that apply): My local site, NCSA, PSC, Other (specify), Does not apply	Check all that apply, text box for 'Other' responses
8a	Software proficiency	I am a proficient software user	1-5 scale, strongly disagree to strongly agree
9	Programs used	In addition to BioCoRE, I often use these other collaborative tools:	Three text boxes
13	Citing BioCoRE	I would cite my use of BioCoRE in resulting publications	1-5 scale, strongly disagree to strongly agree
14	Programs to add	Adding the following applications/capabilities to BioCoRE would benefit my work in BioCoRE: Amber, Charmm, Gromacs, RasMol, Swiss-Pdb Viewer, Calendaring, Audio/videoconferencing, Project management, Other	Check all that apply, text box for 'Other' responses

Evaluation Questions:

Q. #	Question Stem	Scale
10.	The BioCoRE environment extends my workspace	1-5 scale, strongly agree to strongly disagree
11	I am satisfied with BioCoRE	
12	I am satisfied with the quality of the work I do within BioCoRE	
16	What suggestions do you have for improving BioCoRE and BioCoRE support:	Text area

Importance of Existing Features: All planned items used the same 1-5 scale ranging from very unimportant to very important.

Q. #	Question Stem
7	The following BioCoRE feature is important for my work:
7a	Submission and monitoring of NAMD jobs
7b	Submission and monitoring of computational jobs other than NAMD
7c	Sharing molecular views with VMD via BioCoRE
7d	Sharing files via the BioFS
7e	Chatting with the BioCoRE Control Panel
7f	Posting and reading Message Board entries
7g	Maintaining a BioCoRE Lab Book
7h	Sharing web links with project members via the Website Library
7i	Configuring simulations with the NAMD Configuration File Generator
7j	Viewing molecular structures in the BioFS with JMV
7k	Installing my own BioCoRE server
7l	Having access to the BioCoRE source code

Ratings of Support, Documentation, and Overall Usability: All ratings of existing items used the same 1-5 scale, ranging from strongly disagree to strongly agree.

Q. #	Question Stem
8	Rate your agreement with each the following statements:
8b	It was easy to launch the BioCoRE Control Panel
8c	The Help documentation in BioCoRE is useful
8d	BioCoRE provides me with the communication options I need
8e	The BioCoRE summary page offers me the information I need about the status of my project
8f	The BioCoRE support team is responsive to my needs
8g	It was easy to learn to use BioCoRE
8h	Using BioCoRE is easy
8i	I can easily navigate within BioCoRE
8j	External applications (currently VMD and NAMD) are well integrated into BioCoRE
8k	All my data is secure within BioCoRE
8l	BioCoRE is relevant to my work
8m	BioCoRE is a stable environment