

Supporting Grass Roots Implementation of an Evidence-Based Psychotherapy Through a Virtual Community of Practice: A Case Example in the Department of Veterans Affairs

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In contrast to a top-down dissemination approach, the present approach identified existing clinicians using an evidence-based psychotherapy (EBP), dialectical behavior therapy, throughout the Department of Veterans Affairs (VA) system, and created a virtual community of practice (VCoP) to facilitate sharing of materials, resources, information, and clinical expertise. This “bottom-up” or grassroots approach to building a VCoP has potential to support the adoption of EBPs in settings without the resources required to support a large-scale training and consultation initiative. The objective of the current paper is to describe creation, dissemination, and web analytics data of this VCoP to connect providers using an EBP in a national health care system. The VCoP was created using SharePoint and development included user acceptance testing. Dissemination was achieved through a variety of outlets, including use of e-mail listservs, promotion on internal Web sites, and presentations. Monthly Web analytics data were collected on number of unique users, location of users, and number of requests or visits. Monthly Web analytics data indicated that the site was visited every workday in the first year and consistently across 5 years. Number of unique users and number of requests was relatively stable with increases corresponding to efforts to increase site engagement. Location of users demonstrates a wide reach across the VA system. Web analytics data indicate sustained use of the site by providers and methods to facilitate and increase use and interaction appeared to have a positive impact. Future research should investigate the effectiveness of such a strategy on provider behavior.

WITH a focus on improving access to evidence-based psychotherapy (EBP), a number of health systems and organizations have made significant investments in implementing EBPs. For example, the Department of Veterans Affairs (VA) engaged in what can be described as a top-down process, whereby VA leadership decided which EBPs to implement, and then dedicated considerable resources to support travel to face-to-face training workshops, ongoing telephone consultation, online training courses, and the like (Karlin & Cross, 2014). The present paper describes a complementary approach to support implementation of an EBP. In contrast to a top-down, centralized training model, the present approach attempted to identify existing clinicians using an EBP throughout the VA system, and to create a virtual community of practice (VCoP) around them designed

to facilitate sharing of materials, resources, information, and clinical expertise among providers and program directors. This “bottom-up” or grassroots approach to building a VCoP has tremendous potential to support the adoption of EBPs and to support sustainability.

Communities of Practice

Communities of practice (CoPs) are generally described as a type of learning community, collaboration, or organization and involve three dimensions: mutual engagement (interaction of individuals), joint enterprise (working toward a common goal), and a shared repertoire (common resources and jargon; Wenger, 1998). CoPs can enhance knowledge sharing, resulting in improved practices and often cost savings to an organization (Probst & Borzillo, 2008). For example, members in a CoP can document how they solved previous problems for use by others. Probst and Borzillo call this the “non reinvention of the wheel approach” (p. 336). CoPs are often found among those in skilled trade work. A famous example is that of Xerox service representatives doing copier repair work and informally sharing copier repair

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solutions (Brown & Duguid, 1991). Xerox created a knowledge-sharing network to allow more global sharing of solutions and interactions among employees; this was reported to have saved the company tens of millions of dollars (Powers, 1999).

CoPs that utilize technology are referred to either as online or virtual communities of practice (VCoPs). VCoPs can address isolation, caused either by geography, structure (e.g., type of practice setting), or the transition from training to professional practice (Barnett, Jones, Bennett, Iverson, & Bonney, 2012, 2013; Brooks & Scott, 2006; Curran, Murphy, Abidi, Sinclair, & McGrath, 2009; Tsai, Laffey, & Hanuscin, 2010; Valaitis, Akhtar-Danesh, Brooks, Binks, & Semogas, 2011). Social media or social networking sites (e.g., Twitter, Facebook) may be used to support a VCoP, but the applications alone do not necessarily constitute a VCoP. As described above, a CoP must include a shared area of interest, members working in this area, and interaction or a sense of community. VCoPs have been used in business, education, and health settings (Driedger, Cooper, & Moghadas, 2014; Li et al., 2009; Vescio, Ross, & Adams, 2008).

Barnett et al. (2012) conducted a literature review of VCoPs in health and, using the Probst and Borzillo (2008) framework, created the health VCoP framework that consists of seven factors: facilitation; champion and support; objective and goals; a broad church; a supportive environment; measurement, benchmarking, and feedback; and technology and community. These factors are described in Table 1.

Research on VCoPs focuses primarily on user perceptions and attitudes. Users typically rate VCoPs as useful or helpful and believe that their use can improve their practice (Barnett et al., 2013; Tsai et al., 2010; Valaitis et al., 2011; Wang & Lu, 2012). They report that VCoPs are a good way to share information with others (Valaitis et al., 2011) and provide a sense of community (Tsai et al., 2010). They also report no technology issues or barriers (Valaitis et al., 2011). Anderson-Carpenter, Watson-Thompson, Jones, and Chaney (2014) found that CoPs that blended face-to-face interaction and technology to support implementation of evidence-based prevention strategies facilitated practice changes. There is limited research on VCoPs and their effectiveness to facilitate knowledge exchange for health care providers (Curran et al., 2009), on how online interactions enhance professional interaction and exchange of knowledge in CoPs (Valaitis et al., 2011), and on VCoPs in general practice training (Barnett et al., 2013). However, new rapidly growing VCoPs for health care providers (e.g., www.doximity.com) highlight a growing market share and demonstrates proof of concept.

Other research has focused on the use of VCoPs and specifically use of discussion or message boards, which are common features of VCoPs. Rabin and colleagues (2012) reported initial Web analytics data and McKibbin and

Table 1

Description of Factors in the Health VCoP Framework (Barnett et al., 2012)

Factor	Description
Facilitation	Facilitation promotes engagement with the community and helps to ensure that standards of the community are maintained.
Champion and support	Champion and support means that the community initially needs a stakeholder champion and needs to have and foster the support of the stakeholders who will make up the community.
Objective and goals	Objectives and goals refer to a community's need for clear objectives for joining and participating in the community, and provides members with guidelines for contributing.
Broad church	A community should have a broad church, which means that the community's membership is broad enough to include stakeholders with a shared interest (e.g., the focus of the community) who may come from different groups, organizations, or professions.
Supportive environment	A supportive environment is needed to promote a setting where members feel safe and can participate.
Measurement, benchmarking, and feedback	Communities should include measurement in their design; this should include benchmarking and feedback.
Technology and community	Technology and community refers to two separate, but related factors. Communities should utilize technology that is user-friendly and accessible, as well as options that allow for both synchronous and asynchronous communication. In regard to community, they posited that communities share more when there is a combination of online and face-to-face interaction. In addition, passive and active users of the community should be encouraged (Probst & Borzillo, 2008).

colleagues (2013) reported Web analytics data and how their wiki was used for collaboration over the course of 3 years. Distinct types of behaviors have been identified on message boards (e.g., establishing a clinical presence, information seeking, information sharing, raising an issue; Curran et al., 2009) and these behaviors are sometimes different by provider type (Brooks & Scott, 2006). On discussion boards, the majority of the activity was generated by a smaller group of participants (Curran et al., 2009).

Application to the VA and Implementation of a Specific EBP

As mentioned above, the VA has "rolled out" a number of EBPs nationally (Karlin & Cross, 2014). There are other

EBPs in use in the VA that did not have the benefit of such an extensive training and consultation program. One of these is dialectical behavior therapy (DBT; Linehan, 1993). DBT is a cognitive-behavioral therapy that is effective for treating emotional dysregulation and behavioral dyscontrol, including suicidal and self-harm behavior (see Landes & Linehan, 2012, for research summary).

Upon joining the VA, the first author (SJL) was interested in what types of DBT programs were operating in the VA and worked to identify VA settings that offer DBT. In doing so, she noticed that there were a handful of well-known DBT programs and the remaining sites offering DBT were mostly unknown to others. This gap in knowledge of sites and lack of communication between sites had created difficulty in making referrals for veterans to DBT services and had prohibited transfer of knowledge and resources between sites. For example, one site had created note templates for the electronic medical record that could be used by other sites, but had no means for sharing the templates or for identifying with whom to share them. Providers at the various sites expressed strong interest in connecting with other sites and providers and in sharing materials and resources. SJL and the third author (KRW) discussed development of a technical means to support this existing geographically dispersed CoP. A VCoP presented a less resource-intensive and efficient strategy for knowledge translation to support implementation of this EBP in a large, geographically dispersed health care system.

Current Paper

This paper describes the creation of a VCoP to support VA providers implementing DBT around the country. The paper describes how the site was built using the health VCoP framework, the site's components and content, Web analytics data for the first 5 years, and steps to increase and maintain engagement. As there is little information available on the practicalities of a VCoP, the primary goal is to detail how to create a VCoP to support EBP implementation so that other providers or settings may create one for their setting. Next steps for enhancing the capabilities and growth of the community are described below.

Methods

In this section, both the method of developing the VCoP and the method of evaluating the VCoP are presented. This project was reviewed by the local Institutional Review Board and received a determination of nonresearch.

Web Site Technology

The VA DBT VCoP was created on VA's internal SharePoint network. SharePoint is a Web application

platform developed by Microsoft; it has a Microsoft Office-like interface and is designed to be used by nontechnical users (see <http://products.office.com/en-us/sharepoint/collaboration>). The VA uses SharePoint for intranet Web site content, document management, and discussion forums. SharePoint offers the ability for user participation, like a wiki site, which is a Web application that allows collaborative modification, extension, or deletion of its content or structure. Depending on the settings chosen by the administrator, users can upload files, modify existing files, and post in the discussion forum. SharePoint also allows for the creation of pages that function more like typical Web sites where content is provided and can be accessed by users, but not modified. Both types of pages were utilized in the VA DBT VCoP. SharePoint was utilized because it was an available resource and was user-friendly, as recommended by the health VCoP framework.

Initial Creation

Initial creation of the site included creating categories for all of the existing materials that SJL had available to post on the site. These included research articles, clinically oriented reading lists, handouts for use with clients in therapy, evaluation measures, "how-to" documents, and links to external Web sites that included related material. SJL served as the champion in creating and maintaining the VCoP.

Initial categories were created and built as second-level pages on the SharePoint site. Materials were then uploaded to their appropriate pages. To assess whether these categories were user-friendly and made sense to the target audience (clinical providers in the VA), nine psychotherapy providers from sites across the VA with varying levels of knowledge and experience with DBT engaged in user-acceptance testing of the prototype site. Their feedback included suggestions as to how to categorize the materials differently and different ideas for naming existing categories so it was clearer what was housed in each section. Given that no substantive changes were recommended, their feedback was solicited on only one occasion. These providers helped clarify the objective and goals of the VCoP and are stakeholders who were willing to support the VCoP.

While this was being done, information was collected for another section of the VCoP, the listing of DBT components currently offered across VA medical centers and clinics. Prior to creation of this site there was no central point of contact or compilation of information regarding the provision of DBT within the VA. As a result, providers were not able to easily determine where to refer a veteran so that he or she may receive DBT.

To collect information on DBT being provided in the VA, SJL used a variety of methods to seek out providers across the VA who were providing DBT. First, she reached out via e-mail to known DBT providers in the VA. Second,

she presented at an annual conference of VA psychologists in a plenary presentation and solicited information from providers present. Third, another provider posted on the EBP coordinator listserv on her behalf. The EBP coordinator listserv is an internal VA listserv for individuals located at each VA medical center who serve as the EBP coordinator (duties include advocating for and coordinating EBP trainings, consultations, and all aspects of implementation); the listserv includes approximately 175 recipients. Fourth, providers implementing DBT were identified in a method similar to snowball sampling; in all other requests, providers were asked to either identify others they knew who were implementing DBT or to forward the request for information to those individuals. Fifth, SJL contacted the commercial DBT training providers and asked them whether they had trained VA teams and that contact information if possible. Compilation of this list has continued. Providers are encouraged to send in information about their program and information continues to be submitted about existing or newly created DBT programs.

Site Content

The second-level categories were finalized before launch of the VCoP. These include the following sections: overview, therapy resources, training and implementation resources, evaluation and research resources, DBT in the VA (a comprehensive list of DBT available in the VA), and a discussion forum. See [Figure 1](#) for a screenshot of the main page, with the second-level categories listed on the left-hand navigation.

The overview section includes general information about DBT, such as a brief description of the treatment, a review of the evidence for DBT, a list of the types of problems and populations with whom it has shown to be effective, and suggested clinical readings. The therapy resources section is a larger section that includes a page called what to do that contains handouts describing how to do common components of the treatment (e.g., how to run a skills group, a checklist of tasks to be completed in the first four sessions of individual DBT). Also located in therapy resources is a diary cards page that includes a number of different versions of diary cards for use in DBT (e.g., a modified version for use only when implementing a DBT skills group), as well as instructions for use and examples. Therapy resources is also home to the therapy handouts page, which houses the most documents. These are for use with clients and include various handouts and homework sheets that have been created to complement or supplement the original handouts and homework sheets (Linehan, 2015; e.g., states-of-mind homework sheet, pros-and-cons grid) and other forms used in therapy (e.g., graduation certificate, client and therapist agreements). Permission was obtained from the creators

of all items before they were posted, with the exception of links to public-facing Web sites. Copyrighted material, such as copies of the published skills manual, was not posted.

The training and implementation resources section includes a page for presentations, protocols, and materials and information about limited VA training options available in DBT. The presentations, protocols, and materials page includes presentations (e.g., a program development request presentation to leadership), protocols used in the VA to implement DBT (e.g., skills training group rules, referral and screening guide), and other materials created to facilitate implementing DBT in the VA (e.g., note templates created for the electronic medical record).

The evaluation and research resources section houses pages for outcomes, measures, and articles. The outcomes page is where different sites can post information about outcomes they have obtained in their programs, such as poster presentations on program effectiveness and a presentation on utilization data and cost after receiving 1 year of treatment. The measures page serves as a library of outcome measures used by programs or suggested for use to evaluate services. It includes the measure (when permission was given to share the measure), basic information and references, and scoring instructions. The articles section includes primary research articles on DBT organized by topic (e.g., substance use disorder, inpatient settings).

The final two sections of the VCoP are the discussion forum and the comprehensive list of DBT components available in the VA. The discussion forum allows users to post questions for discussion. Replies are also posted there, making the discussion available for future reference by users. The discussion forum was divided into three categories: general discussion and practical challenges, DBT skills group or specific skills, and individual therapy. The comprehensive list of DBT components available in the VA is a page that is organized by Veteran Integrated Service Networks (VISNs; geographical regions in VA). Users click the VISN and it drops open to show all known available DBT components in that VISN. Information includes the facility name, city, DBT component(s) offered (e.g., DBT skills group, full DBT program), setting (e.g., outpatient mental health), and the name and e-mail for the point of contact.

The content included in these pages came from a number of sources. SJL had a number of existing resources created and had links to publicly available resources. When contacting programs to be listed on the site, she also asked whether they would be willing to share materials or resources they had or created to be posted on the VCoP. Finally, in an effort to make additional materials available, SJL contacted individuals who had

The screenshot shows the main page of the Dialectical Behavior Therapy (DBT) SharePoint site. The page is titled "Dialectical Behavior Therapy (DBT)" and includes a navigation menu on the left. The main content area features a "Welcome to the Dialectical Behavior Therapy (DBT) SharePoint" message, a "Mindfulness" image, and a "DBT Forums" section. The "DBT Forums" section explains that forums are a great communication tool and lists the advantages of using a forum, such as opening up the conversation to the entire DBT community and making conversations available for reference later on. Below this is a "Useful Links" section with links to various DBT resources. On the right side, there are three boxes: "Highlighted Resource" with a link to "New Research on DBT Skills", "Interested in Receiving Updates?" with information about mailing lists, and "Find DBT in VA" with a link to a list of VA facilities.

Figure 1. Screenshot of main page of the DBT SharePoint site.

posted materials on an external DBT wiki site not accessible within the VA. She obtained approval to repost those materials on the VCoP and made the appropriate acknowledgments. Materials are added on a regular basis and users now have the ability to post their own materials.

VCoP Members

VA SharePoint sites are only accessible on the VA intranet and therefore accessible only by VA employees. This helps provide a broad church, as suggested by the health VCoP framework, as any VA provider can access the VCoP; it is not limited to providers in certain clinics or certain professions. Any VA employee interested in DBT can participate or use the VCoP. Information on the VCoP welcomes users and provides information about how to interact with material and one another and sets the tone for a supportive environment.

Security and Privacy

Limiting access to only VA employees increases the security of the Web site. In regard to the discussion forum, users of the site are reminded that the posts are not

anonymous (they are linked to the person's VA username), that all VA staff has access to the posts, and to consider whether posts might contain identifying information. Any posts that include identifying information about a patient or protected health information are removed. To enforce this, the site owner receives alerts when any information is posted and reviews it within 24 hours. To date, no posts have been made that include identifying information or protected health information.

Dissemination

In September 2012, the VA DBT VCoP was launched and available to anyone within the VA network. A number of dissemination strategies were used. First, SJL sent an e-mail announcing the launch of the site to everyone who had been contacted to gather information about DBT in the VA. Recipients were encouraged to forward the e-mail to anyone in the VA who might be interested in the site. Second, during month 1 the site was promoted on the EBP coordinator listserv, the military sexual trauma (MST) listserv, and the international DBT listserv (outside of the VA). The MST listserv is for announcements of

general interest to VA staff in the MST community, most notably announcements pertaining to monthly teleconference training calls, as well as other education and training opportunities; it includes approximately 960 recipients. The international DBT listserv is available to DBT providers who have completed intensive training in DBT internationally and includes approximately 1,570 recipients. Third, an e-mail signature banner was also created for the site in the first month and has been used since that time by SJL. Fourth, the site was promoted on the Mental Health Services intranet home page as a new resource and community of practice in the first month and was listed as a treatment resource on the VA National Center for PTSD's intranet page. Fifth, the site was promoted in a VA Staff PTSD Updates e-mail newsletter at the end of the first month. The site has also been announced in various conference and training settings, such as a clinical roundtable discussion on implementing DBT in the VA at the annual conference for the Association of Behavioral and Cognitive Therapies and on multiple VA Women's Mental Health webinars focusing on DBT. Finally, the two well-known training companies in DBT also know of the site and refer trainees who work in the VA to use the site.

Increasing and Maintaining Engagement

As described in Barnett et al.'s (2012) health VCoP framework, VCoPs require facilitation to promote engagement. We have engaged in facilitation in numerous ways to increase and maintain user engagement with the community. From the beginning, the site was created and developed with input and engagement from the members of the VA DBT community. We continually add new information to the site (e.g., new handouts, new presentations). Additionally, VA providers who offer DBT or are DBT experts were engaged via e-mail to either add information to the site about their practices (e.g., a handout on how to use psychiatric nursing staff for phone coaching) or to reply to discussion forum posts. Changes to the VCoP included adding a display of highlighted resources (the content of which can be changed on a regular basis), adding information about the new listservs on the main page, and adding a section with a library of clinically related articles and clinically oriented book suggestions.

In August 2014 (month 24), two VA e-mail listservs were created and changes were made to the site. The first listserv is a "news and updates" list that sends e-mails about relevant information (e.g., available training, DBT books) and highlights when new materials have been added to the VCoP (e.g., new articles uploaded). In order to address the lack of use of the discussion forum, the second listserv is a discussion forum alert e-mail. These e-mails notify users that

a new post has been made in the discussion forum, includes the text of the post, and provides a link to view the post and reply. As of September 2018, the news and update listserv has 826 members and the forum alert listserv has 741 members.

Measures

The health VCoP framework recommends measurement for communities. We used the site Web analytics data automatically collected by SharePoint to get a basic understanding of whether and how the site was being used. Data can be captured for the last 30-day period at any time. Data included number of unique users and location of users. Data also included number of requests, defined as pages or items visited or accessed. For example, visiting the main page, clicking the Diary Cards page, and clicking one of the diary cards listed on that page would consist of three requests. Number of discussion forum posts was counted. A list of referral sites was collected from the SharePoint Web analytics reports.

Data were collected on the first of each month to capture the previous month's data. Difficulty accessing the site resulted in collecting data on later dates (e.g., the third of the month) on 5 months during the first 2 years. Data were compiled monthly. The VA upgraded to a new version of SharePoint, Version 10, in 2015. The transition resulted in a change in the type of Web analytics data available, as well as lack of access to Web analytics data for August, September, and October 2015.

Other data were collected by either viewing the SharePoint site directly or by counting e-mails received. The number of original discussion forum posts and the number of replies for each on the SharePoint site were counted. The number of requests for training received were counted by tallying e-mails received.

Results

Using Web analytics data collected by SharePoint, we descriptively assessed usage trends for September 2012 through September 2017. Some data were collected only for the first two years; this is indicated where applicable below.

Unique Users

In the first 30 days, the site had 1,334 unique users. In the following months, it had between 24 and 684 unique users per 30 days. See Figure 2 for a noncumulative graph depicting the number of unique users each month. Note that the transition to a new SharePoint version occurred in months 36, 37, and 38; data were not available for those months.

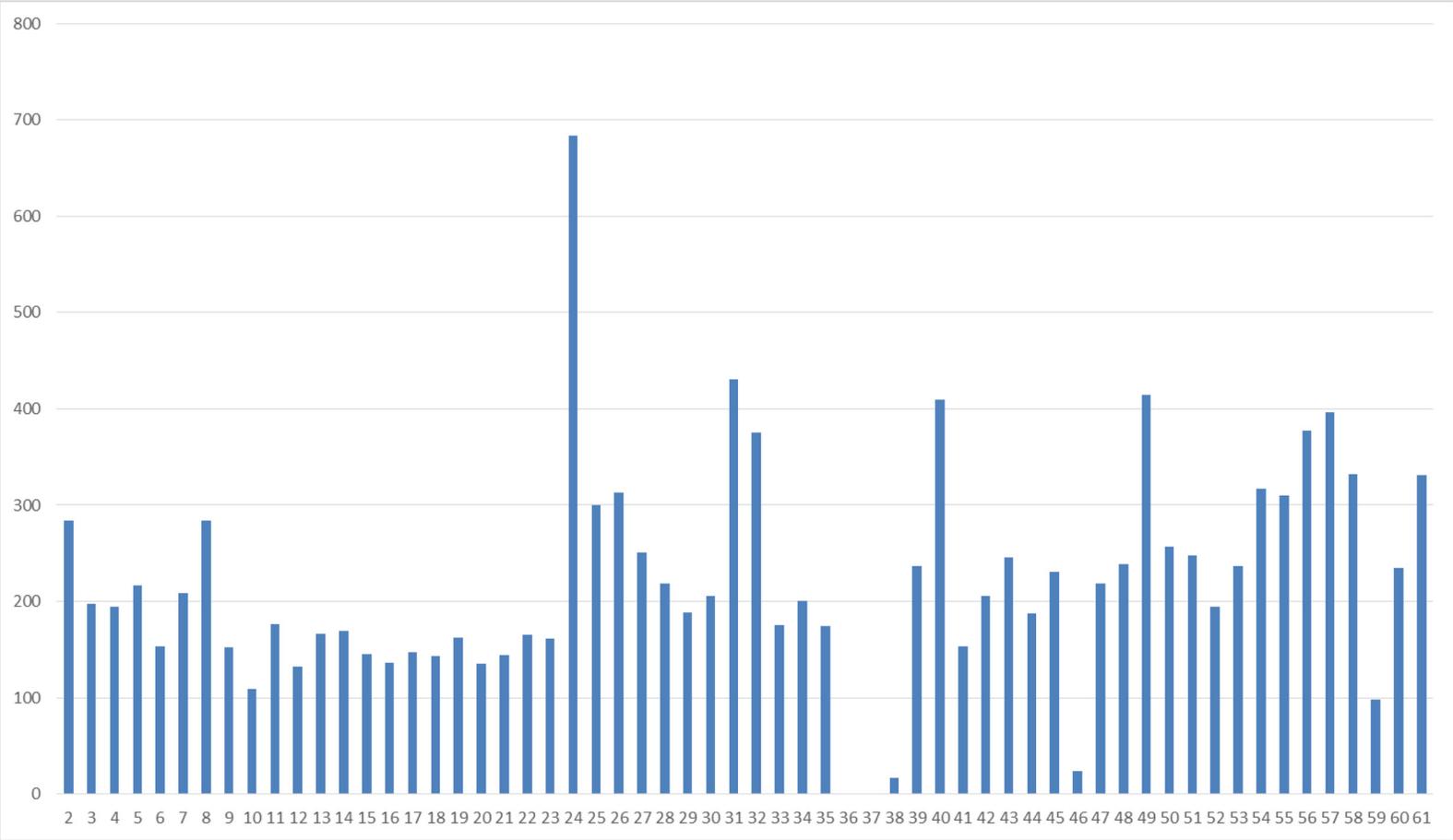


Figure 2. Number of unique users per month. Note that data were either not available or incomplete for months 36, 37, and 38.

Location of Users

The site is available only to providers within the VA and with access to VA intranet (e.g., accessing from a VA computer). Users included providers from across all 18 VISNs. In both the first 30 days and the last 30 days captured, the top five users of the site were from different VISNs. These data were collected only for the first 2 years.

Visits and Requests

The site was visited every workday in the first year after launch. In the first 30 days, the site had 165 average requests per day. In the following months when data were available, it had between 4 and 133 average requests per day (see Figure 3). Note that the transition to a new SharePoint version occurred in months 36, 37, and 38; data were not available for those months. The types of Web analytics data made available changed in Month 59 and number of requests was removed.

Discussion Forum

In the first 23 months, there were 22 original postings (e.g., new questions or messages) in the discussion forum, with an average of 2.05 replies to original messages ($SD = 0.99$). In month 24, the e-mail listserv was implemented. During months 24–48, there were 46 original postings, with an average of 3.41 responses to original messages ($SD = 2.09$). A bar chart of the number of original posts and reply posts per month is presented in Figure 4. There were three categories for postings: general discussion/practical challenges, skills group or specific skills questions, and individual therapy questions. The majority (66%) of all original postings were in the practical challenges section.

Referral Sites

As discussed above, information about the VCoP and the link to the site were disseminated in a variety of ways. Based on Web analytics data, people accessed the VCoP via the following referral sites: VA intranet site search, Mental Health Services intranet site, National Center for PTSD intranet site, the e-mail signature block with the link on SJL's e-mail, the link on SJL's LinkedIn profile, the MST intranet site, various VISN-level intranet sites (VISNs 1, 2, 5, 17, 21), and specific VA medical center intranet sites (e.g., VA Salt Lake Health Care System). These data were collected only for the first 2 years.

Consultation and Training Requested

As a result of the launch of the VA DBT VCoP, a number of programs requested consults and trainings. SJL was listed as a contact on the site and as one of the two options for DBT in training in the VA and received nine inquiries regarding providing training at VA sites across

the country. Clinicians at the Minneapolis VA were also listed as a training resource. They reported getting approximately one call every other month referencing that they found the training through the VCoP. These data were collected only for the first 2 years.

Discussion

The VCoP created here, the VA DBT VCoP, worked to connect providers across a national health care system and facilitated sharing of information and materials, as well as a discussion of common challenges. This was demonstrated by continued use of the site for the first 5 years, addition of materials by users, and increased and continued interaction on the discussion forums. The site also provided a comprehensive list and therefore a way to identify other providers doing DBT with whom to engage in discussion or for referrals.

Ongoing use of the site was actively facilitated in a number of ways. First, we collaborated with the target audience in creation of the site to enhance usability and create something of interest (e.g., obtaining feedback regarding second-level categories and making changes in response to feedback). Second, continued addition of new materials also likely maintained use of the VCoP. Third, ongoing prompts to use the site and creation of an associated listserv have increased use.

As demonstrated in Figure 3, there was a spike in traffic to the site at month 24 when listservs were initiated. That increase was followed by a decrease, and then sustained use that appears slightly higher than before the listservs. As demonstrated in Figure 4, there was also an increase in replies to discussion forum posts following initiation of the listservs, one of which alerted people to new posts. The listservs were launched in month 24 and both original and reply posts increased in the following month. Month 35 was of interest given the high number of posts; upon review of the reply posts we found that the person who made the original post replied "thank you" to each person who responded, which doubled the number of responses. Figure 4 also provides a visual of sustained use of the site over 5 years.

The listservs were created in part due to low usage of the discussion forum, and in response to provider requests. The literature suggests that the critical mass needed in social networks is 15% of the targeted population (Geddes, 2011). The VA employs approximately 20,000 mental health clinicians, and given the average number of unique users per month, only about 1% uses the VA DBT VCoP. Therefore, it is not surprising that initial usage of the discussion forum was low. Despite the need for a larger critical mass, the implementation of the listserv has increased the number of original postings and replies. The population of interest for this site may only be providers involved in DBT in the VA, which is

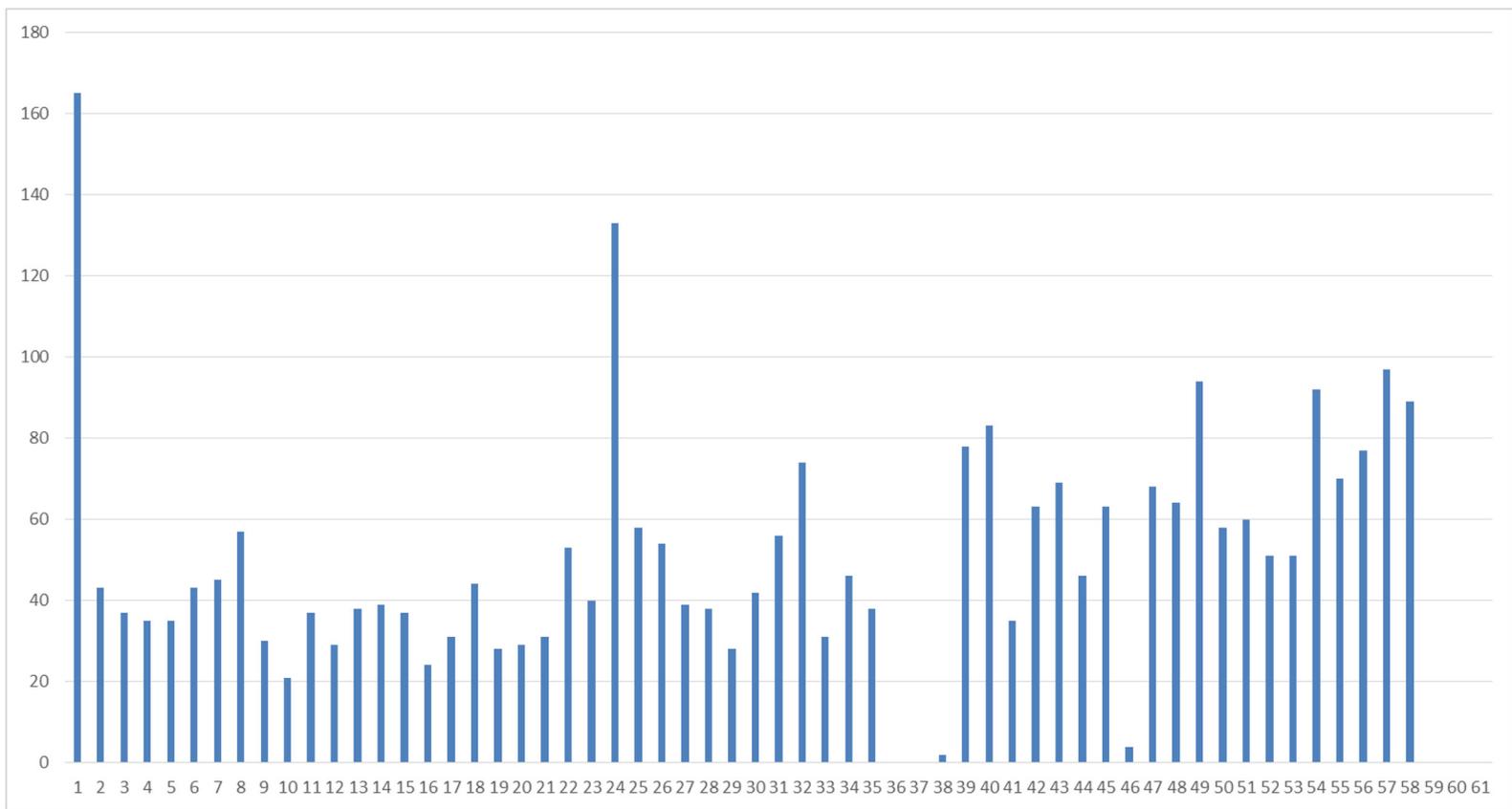


Figure 3. Average number of requests per day per month. Note that data were either not available or incomplete for months 36, 37, and 38, and stopped being available after month 58.

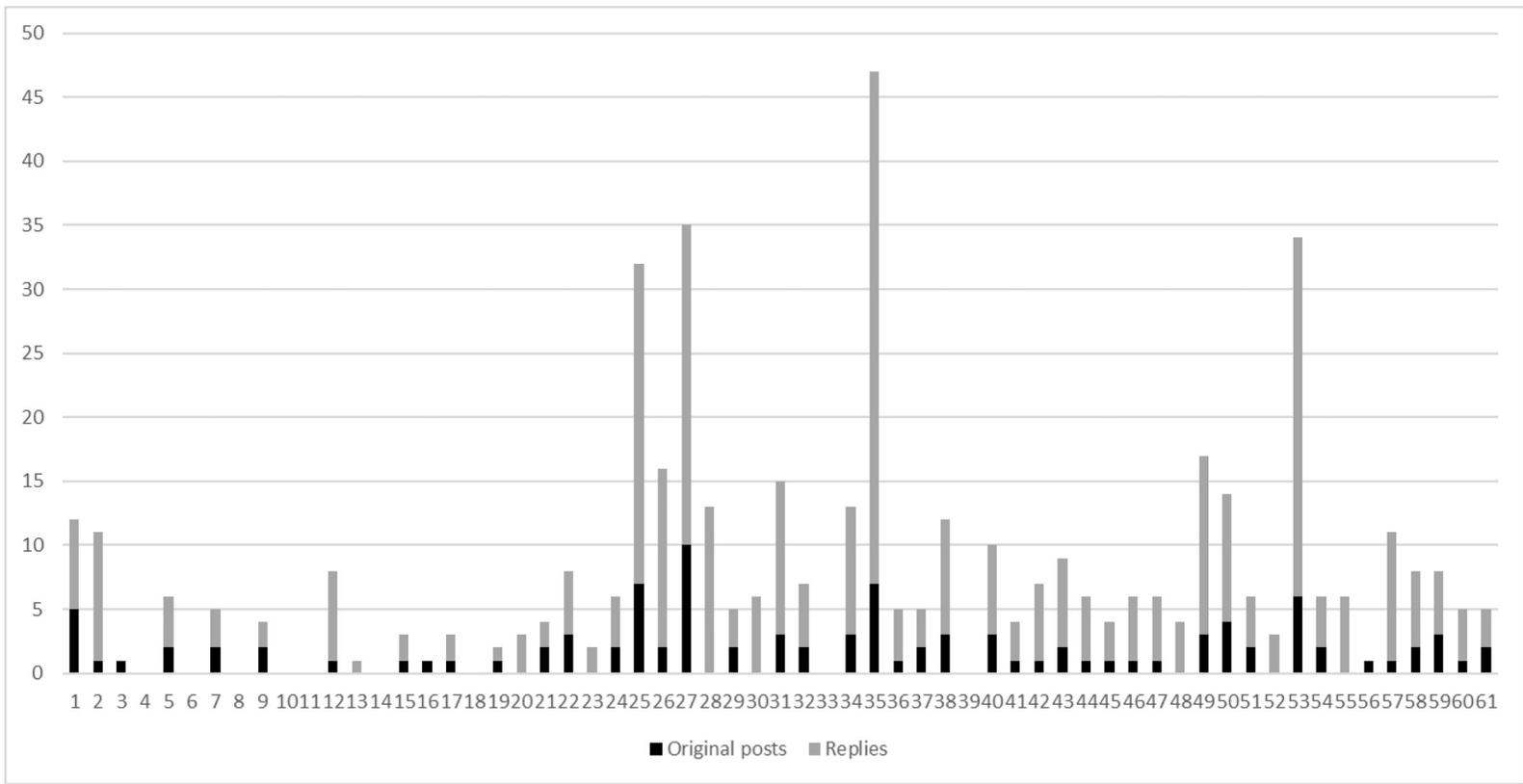


Figure 4. Number of discussion forum (original and reply) posts per month.

likely a small proportion of the 20,000 mental health clinicians. Future evaluations of DBT in the VA may allow for better identification of this population.

The VA DBT VCoP includes key characteristics of a VCoP. When comparing it to the health VCoP framework (Barnett et al., 2012), the VA DBT VCoP meets all of the seven characteristics. We used *facilitation* to promote engagement and maintain community standards. This was done through SJL soliciting materials from providers to be posted, redirecting consultation questions to the discussion forum, encouraging providers with known expertise to respond to postings on the discussion forum, and monitoring of the content and quality of materials posted. We also had *initial champion and stakeholder support*. SJL served as the initial champion and engaged a variety of DBT providers across the VA in creation and promotion of the site to enhance stakeholder support. Encouragement of users to post their own materials and promoting information and events for related operations partners (e.g., offices of Women's Mental Health, Suicide Prevention) also served to increase stakeholder support. The site had a clear *objective* of connecting providers within the VA who are interested in DBT. The *goals* of this VCoP were to (a) create a space for providers to get needed information and resources, (b) create a space for providers to share their materials and experience with other providers, and (c) create a forum for discussion. In addition, pages included instructions that highlighted how to contribute. The site also had a *broad church*, as it included a variety of types of providers (e.g., social work, psychology, nursing), but was not too broad and was limited to VA providers interested in DBT. The site has provided a *supportive environment* and includes language that highlights how best to interact on discussion forums to promote helpful comments. Thus far, no unsupportive behavior has occurred; the site is monitored and intervention is possible to address future behaviors if needed. Use of SharePoint software allows the site some basic *measurement* (as described above) and the ability for users to submit *feedback*. Finally, the site uses *technology* that provides ease of use and access and asynchronous communication via the discussion forum, and the *community* members are allowed to self-select and both active and passive members are welcome.

When considering building a VCoP and the seven key characteristics of a VCoP, one also needs to consider what resources are required to do so. In reviewing the resources used for this VCoP, we categorized them as Web site infrastructure, technology expertise and skills, content knowledge, and time. Within the VA, we were fortunate to have access to SharePoint intranet sites as part of our agency infrastructure and this served as the basis for building the Web site. Our agency also has an existing technology for creating e-mail lists for listservs, so

no additional work was needed to create these. If an organization or group does not have internal access to resources such as these or the ability to hire someone to build them, we found that a number of Web sites offer relatively inexpensive group Web spaces (e.g., one site offers a group Web site, member database, group mailing list, custom newsletters, forums and wikis, and a file repository for 2,000 users at \$19.99 per month). While they may not have all of the same functionality as the VCoP described above, free resources also exist, such as Google Groups, for managing listservs and folders.

We also had access to two individuals with the appropriate technology expertise and skills who were willing and able to donate their time to help build the Web site at the outset of the project. This included building out the structure of the Web site, teaching the person responsible for the Web site how to update it, and creating a logo and Web banners. If a group were to pay for a Web space with the functionality needed, these resources may not be needed, as it would be prebuilt and/or created for a nontechnical user. An online search for 'inexpensive logo design' indicated that a number of online resources are also available for the creation of logos and banners, should a group want to customize their site or materials.

Finally, we had someone with both DBT content knowledge and time to lead the creation and maintain it. As expected, more time was needed at the beginning to both build out the site, disseminate the site, and prompt user engagement. Access to a content knowledge expert who is willing and interested is likely needed; in our case, this person initiated creation of the site after seeing a need for it. This may be more feasible in a setting where such a person already exists, where a trainer is hired and the contract includes creation (or contribution of knowledge to) of a VCoP to foster sustainability following training, through grant funding, or even by a motivated person who is learning the content and wants to create a space for continued shared learning with others at his or her site. Once the site was functioning, the time to maintain it is approximately 2 hours a month and has been accomplished with administrative support (e.g., work is done by a program assistant). This could be done by an administrative staff person with time and interest or by a volunteer.

Future Directions for Growing the VCoP

The Web analytics data presented here give an indication of the general "health" of the VCoP in that it demonstrates continued use by users from across the health care system and that the listservs fostered use of the site. It does not provide detail on how providers used the information from the site to improve implementation at

their site. We have anecdotal reports of providers using the site to make referrals, evaluate their DBT programs, engage with leadership about getting more resources for implementation, and overall use of materials clinically. Future work to enhance this VCoP will include continued dissemination to uncontacted groups (e.g., VISN mental health leads, VA medical center medical directors) that may have a larger reach and more ability to impact implementation at a broader level. We also plan to engage users to find out what types of materials are desired, so that those can be created and shared. It is also posited that communities may be more likely to share knowledge when there is a mixture of online and face-to-face meetings (Probst & Borzillo, 2008). We are investigating opportunities for users of this VCoP to interact at in-person meetings or conferences, such as the joint Department of Veterans Affairs and Department of Defense Suicide Prevention Conference or other related meetings. Given the challenges of having users distributed across the country and limited travel ability, we are also exploring other options for synchronous communication and interaction. This may include monthly DBT consultation calls, video teleconference, live events online (e.g., www.myvehucampus.com), or use of internal social media applications (e.g., VA Pulse).

Future Research

In addition to supporting and enhancing this VA DBT VCoP, future work should also include research on the impact of VCoPs on implementation of EBPs. For this VCoP, future research could include quantitative or qualitative examination of how existing users have used this site and resources in implementation. Future research should also examine the impact of a VCoP on implementation in a similar method as Barwick, Peters, and Boydell's (2009) research on a face-to-face CoP. An evaluation framework for CoPs that is in development (Braithwaite et al., 2009) may offer another means for evaluating VCoP more systematically. Social network analysis may also offer interesting insight by mapping and measuring relationships between members of a VCoP. This type of research may identify how to best facilitate interactions on a VCoP to share knowledge.

Conclusion

This paper has described the development and use of a VCoP to support grassroots implementation of an EBP across the VA, the nation's largest integrated health care system. Analytics reflect sustained use of the site by providers over the course of 5 years. Methods to facilitate and increase use and interaction appeared to have a positive impact. Use of a VCoP such as this provides a low cost, efficient strategy to support implementation of EBPs, even across a large health care system. Health care systems

should consider creating VCoPs as an implementation strategy as a way to support ongoing implementation efforts or when resources are not available for more intensive implementation strategies (e.g., a systemwide rollout, national trainings). Future research should investigate the effectiveness of such a strategy on provider behavior.

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