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Developing Wildland Firefighters' Performance Capacity Through Awareness-Based Processes: A Qualitative Investigation

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Abstract

Wildland firefighting is environmentally and socially a risky and complex occupation. Although much attention has been given to understanding the physical components in fighting wildland fire, much less time has been devoted to understanding and developing the capacity of wildland firefighters to handle the dynamic pressures of the physical and social environments. The purpose of this study was to explore the receptiveness, utility, effectiveness, and potential improvements for a mindful and self-compassionate awareness program developed for the wildland fire environment. The program was based on the use of a conceptual tool to refocus awareness and move self-compassionately through key aspects of present moment happenings with the self, others, and the surrounding environment during a six-month period. A sample of federal fire managers and crew supervisors ($N=8$) located at three locations in the Western United States was used to assess the program. Through an action research methodology, program receptiveness, implementation, and suggested improvements were explored. Key findings closely aligned with other mindfulness, self-compassion, and positive psychology interventions. Participants reported positive outcomes through using mindfulness and self-compassion processes through a variety of stressful, dynamic life situations both personally and professionally. Regarding the intervention aspect, participant experience was influenced by several factors including person–activity fit, age, and career and life experience. In general participants had varying degrees of adherence, unique implementations, and favored its adoption and further exploration in wildland fire curricula.

Keywords: mindfulness, self-compassion, positive psychology, SHARP, performance capacity

As Kabat-Zinn (1994) describes “we are only partially aware at best of exactly what we are doing in and with our lives, and the effects our actions, and more subtly, our thoughts have on what we see and don’t see and what we do and don’t do” (p. xiv). The notion of awareness, particularly of the outside environment, is salient to wildland fire personnel. From the physical demands placed on the ground firefighter to the political and social pressures placed on fire managers, the wildland fire environment is filled with an array of stressful encounters and distractions to accomplishing objectives effectively. Not doing so can result in severe consequences (e.g., fatalities, accidents, homes burned, resources lost, and high personal stress). The most successful leaders and decision makers have been those who have been able to consistently adapt and contend with stressors, pressures, and other impediments to decision-making awareness; the challenge lies in developing this capability in more managers. One route is through positive psychology interventions (PPIs), which are concerned with understanding and creating techniques to developing the positive, adaptive, creative, and emotionally fulfilling aspects of human behavior (Seligman, 2011). PPIs are associated with concepts such as mindfulness and self-compassion; germane to the wildland fire setting is a tool based on mindfulness and self-compassion—SHARP (Stop, Here Act, Respond, Person)—that was developed with wildland fire personnel for use in these types of high-stress, high-stake settings.

The two concepts of mindfulness and self-compassion fit together similarly to matching puzzle pieces, each filling in where the other is lacking; Germer (2009) has noted that mindfulness mainly focuses on thoughts, while self-compassion focuses on the emotions. Goleman (2005) has noted that both capacities are important components in balanced decision making. Because of the importance of fire managers’ capabilities to operate in the most complete, balanced, and effective

way possible, both elements of mindfulness and self-compassion were included in the program and tool that is the focus of this study.

Mindfulness

In the past wildland firefighting has understood mindfulness as part of an organizational concept called High Reliability Organizations, which encourages excellence in safety and leadership through five ideals: recognizing potential barriers, resisting simplification of information or interpretations, ensuring situational awareness as events occur, being prepared for unexpected events, and calling on appropriate expertise (Weick & Putnam 2006; Weick & Sutcliffe, 2001). In individual contexts mindfulness has been defined as “the self-regulation of attention that is maintained on immediate experience...an orientation that is characterized by curiosity, openness, and acceptance” (Bishop et al., 2004, p. 232). Chambers, Gullone, and Allen (2009) add that operational definitions of mindfulness have included “paying sustained attention to ongoing sensory, cognitive, and emotional experience, without elaborating upon or judging any part of that experience” (p. 561). Moreover, Baer, Smith, Hopkins, Kreitemeyer, and Toney (2006) outlined five facets of mindfulness found across the literature, namely (1) nonjudgmental of inner experiences, (2) non-reactivity to inner experiences, (3) describing or labeling with words, (4) acting with awareness, and (5) observing and attending to thoughts, feelings, and sensations. Through these different routes of experience, mindfulness is a way of navigating through distractions and less important matters to what is happening, and to focus on what is most important in the present moment.

Mindfulness is a flexible tool that can be adapted and utilized for different purposes and environments. For instance, mindful processes have enhanced and influenced multiple aspects of well-being, ability to cope with stressors, and working memory capacity to name a few (Chambers et al., 2009). Recently, mindfulness has been linked to aspects of healthy employees, including but not limited to job satisfaction and emotion regulation (Hülshager, Alberts, Feinholdt, & Lang, 2013; Pepping, Davis, & O'Donovan, 2013), job performance and psychological need satisfaction (Reb, Narayanan, & Chaturvedi, 2012), and increased personal resources for work engagement (Leroy, Anseel, Gardner, & Sels, 2012). Furthermore, Glomb, Duffy, Bono, and Yang (2011) have noted the potential for mindfulness to influence relationship quality, resiliency, and processes related to task performance and decision making in work settings; however, they pointed out the need for more actual interventions in the workplace to discover if mindfulness can be used to enhance various aspects of work. In the current study mindfulness strategies have been utilized as one of the two essential parts to the development of

performance capacity. As noted earlier, to add balance, self-compassionate strategies were used to form the other essential part.

Self-Compassion

Self-compassion is how much people exude self-kindness, a sense of common humanity, and aspects of mindfulness towards themselves (Neff, 2003). Kindness is the opposite of judgment; during setbacks, people who are kind to themselves respond with understanding rather than harshness and criticism (Germer, 2009; Neff, 2003). Common humanity is the opposing element of isolation; in the face of recognized shortcomings self-compassionate individuals remember that most people can relate with feeling inadequate at times (Germer, 2009; Neff, 2003). Last, in the self-compassion literature mindfulness is described as the opposing element of overidentification; mindful individuals do not become attached to feelings and emotional thoughts and are able to keep their experiences in a balanced, realistic perspective. This allows them to permit their experiences, while maintaining an open perspective so that they might be able to respond effectively to those experiences (Germer, 2009; Neff, 2003). The mindfulness described by Neff is only a portion of the general concept of mindfulness that encompasses a much broader scope; Neff's self-compassion uses mindfulness as it pertains specifically to the management of feelings and emotions toward the self.

Those higher in self-compassion have been found to be more resilient through turbulent times when it would be easy to get swept up in the difficulties (Siebert, 2010). In addition, those who are more self-compassionate maintain a steady level of emotion and composure throughout life events, whereas others who are high in self-esteem, a concept grounded in self-evaluation, experience many peaks and valleys in response to different life events (Neff, 2009; 2011). Germer (2009) has stated that showing oneself compassion is the most complete way to take care of the self. Self-compassion can be seen as a potentially critical element for fire personnel to have, because it allows them to be realistic about circumstances, especially failures, and encourages resiliency in the face of a demanding work environment. Thus far, recent intervention programs that incorporate both mindfulness and self-compassion, such as the Mindful Self-Compassion program, are reporting promising findings that the two can be conjointly used for various life improvements for participants (Neff & Germer, 2013). While recent interventions have been shown to be effective in joining mindfulness and self-compassion, the focus has been on therapeutic application. The purpose of SHARP is for application to the work and everyday setting. Specifically, a setting when decision making is poor, not being aware of the self, and not taking care of the self result in high consequences for not only the self, but others and the environment. SHARP could

be an aid when dealing with specific hindrances to optimal performance in wildland firefighting, which have been reported to include such factors as facing overwhelming, interpersonal, intrapersonal, environmental, mundane, performance-enhancing, and critical decision-making circumstances (Lewis & Ebbeck, 2014).

Purpose of the Study

In order to effectively address the usefulness and feasibility of SHARP, four important guiding questions were addressed through the experiences of fire managers (includes both operational managers and crew supervisors) in using the program. First, how is the program implemented by fire personnel? This included at what times (e.g., down times, in the heat of an argument, etc.) and in what fashion the program was utilized. Next, how receptive are fire managers to the SHARP program? Such knowledge is key in understanding strengths and obstacles to its presentation, timeline, and arrangement. Last, how could the program be improved? The experiences that fire personnel had with SHARP coupled with their expertise within the wildland fire environment could provide critical insights to further hone the process of program development, and whether presenting mindfulness and self-compassion in this manner was effective.

Methods

This study used a participatory action research (PAR) methodology to investigate the feasibility of utilizing SHARP in the wildland fire community. PAR is different from usual research, in that participants play active roles in the research process by working closely with and providing feedback to the researcher throughout the research process (Castellana & Jordan, 2002) so that the end product closely aligns with what is most useful in the setting. PAR is often used within adult learning environments and is a cyclic process of four steps: *diagnosing*, *planning action*, *taking action*, and *evaluating action* (Coghlan & Brannick, 2001).

“Diagnosing” the problem and developing a plan of action with fire managers were two prior steps taken at the start of this investigation. These steps ensued through seven focus groups with 39 wildland fire managers (Lewis & Ebbeck, 2014); the tool and program that resulted from the feedback received (SHARP) aims specifically at helping fire personnel develop, expand, and maintain focus through stressful and everyday events. The language and terms used (mindful became self-aware and self-compassion became self-care) were adjusted to suit wildland fire personnel. This prior research helped inform the phases taken during this process, which Herr and Anderson (2005) note as not being uncommon. In addition, the authors’ university IRB approved all past and current research for the study.

“Taking action” was the beginning phase of the current study with the implementation of the program with wildland fire managers and supervisors. Action research falls under the notion of naturalistic inquiry, in that the methodology may evolve and change to best address emerging and evolving issues; the important part is to document these changes (Herr & Anderson, 2005). As such, when certain timelines or procedures did not work for participants, researchers worked with participants to modify the plan, while documenting the changes. Through the end of each phase, the overall process was evaluated.

Participants

A purposive sampling design (Creswell, 1998; Lincoln & Guba, 1985) was used to select participants who met the criteria for providing the most specific and important details regarding mental and physical performance in the wildland fire context. The majority of wildland firefighting occurs west of the Mississippi River. As such, participants were wildland fire managers and crew supervisors in the Western United States who were over the age of 18. The researchers needed participants who were willing to reflect on their experiences using SHARP, have time to do so, and lastly be willing to collaborate with the researchers. It was required that they be employed with the Department of the Interior, Department of Agriculture, or a state office such as Oregon Department of Forestry. Individuals who are employed in these offices both must make sense of, and are the primary audience for human factors trainings. They are also placed in roles where they must develop subordinates, make timely, accurate decisions, and contend with a multitude of other personal and job-related stressors. Thus, they were recruited for their ability to provide the most accurate, usable feedback based on their experiences with the program and working for government agencies. Participants, seven male and one female, ranged in age from 29 to 59 years (mean = 34), and were employed by the U.S. National Park Service (18%) as well as the U.S. Forest Service (82%), and ranged in experience from 10 to 39 years. Five participants were in assistant supervisory roles and three were in managerial roles.

There are no specified sample size guidelines for action research; however, in this phase of the research, the program resembled case study methodology, in that it was specific to a particular context, it was an in-depth analysis and evaluation of a process, and more than one source was utilized for analysis (i.e. documents and interviews) (Creswell, 1998, 2003). Creswell (1998) recommends a maximum of four individual case studies or sites; we utilized three sites. Of the eight participants who agreed to participate, six were in Site One, one in Site Two, and one in Site Three. Of the eight participants, five adhered closely to the SHARP program and these participants will be the primary focus of this article. The other three participants

who did not comply with the SHARP program offered unique insights about the program. Due to the different ways in which these non-compliant participants thought about and used SHARP, their experiences are recorded via the exit interviews in which they participated.

A Mindful and Self-compassionate Awareness Program—SHARP

SHARP is an acronymic tool that is the basis for the program that was used to develop mindfulness and self-compassion for firefighter mental and physical performance within the wildland fire environment. With the aid of wildland fire personnel, this tool was designed to be simple, easy to reference, and presented in a way that is appealing and useful to wildland fire personnel. SHARP was chosen because of the common meanings often associated with it when seen in a general Merriam-Webster's Dictionary (e.g., keen, with it, mentally acute, and vigilant). The intention of SHARP is to utilize the tool regularly to monitor one's awareness, present moment experiences, and responses, so that when more stressful events arise, it is a practiced habit that can be easily and quickly applied. It can also be used to recognize personal triggers, and ineffective responses, because, as Siegel, Germer, and Olendzki (2009) note, the first step in changing patterned responses is recognizing when and how problems occur. To maintain consistency with the literature, the five facets of mindfulness described by Baer et al. (2006), the central aims of mindfulness outlined by Kabat-Zinn (1994, 2003), the nature of enhancing mindfulness through asking questions in an open-ended manner (Langer, 1989), and the core components that comprise self-compassion (Neff, 2003) were used to create SHARP. The first four letters of SHARP correspond to a question or action to help fire personnel engage mindfully with the present moment, and the last letter speaks directly to self-compassion.

The following are the broken down elements of SHARP. The "S" is for *stop* and concerns the notion of remembering to pay attention, to notice the situation, or briefly take a reprieve and take reference to what is happening, and describe it. "H" is for *here*, holding one's current awareness, or paying attention on purpose to where one's awareness is, or was when a situation occurred. "A" is for *act* or recognizing what one is/was outwardly doing (i.e., what others can see). "R," *respond*, refers to the internal dialogue, emotions, and sensations that one is having in response to being stimulated (e.g., having angry emotions and feeling oneself start to get physically hot). "P" stands for *person* and allows individuals to come to terms with a situation and move forward by taking care of themselves. This includes if mindfulness of emotions and thoughts that are allowed to be (permit) is being practiced, identifying if (positive) self-kindness is being given to themselves, and lastly if common humanity (perspective) is being held. Thus, individuals were encouraged to *permit* a *positive perspective* when considering the "P" or person in

SHARP. What remained unknown, and the focus of the current investigation, was whether crew supervisors and managers who primarily serve in leadership roles could reasonably incorporate SHARP.

Implementation of SHARP

The SHARP program consists of a mindful and self-compassionate process that is amenable to the timeframe and culture of wildland firefighting. The program was implemented across three phases of 3- to 4-week periods because, as Gardner and Moore (2007) noted with their implementation of mindfulness, participants need 10–16 weeks to fully experience changes in performance and the needs can be different for each participant. Additionally, Lally, van Jaarsveld, Potts, and Wardle (2010) have noted that habits take an average of 66 days to form, but can range from 18 to 264 days. Thus, we aimed to give our participants the time they would need to develop the skills of the program if they chose to do so.

Procedures

The lead author, who has trained in mindfulness, has engaged in many self-compassion exercises, and has been a wildland firefighter, led participants through a two-hour group training. This training was designed to introduce the SHARP concept, outline potential outcomes, and explain how SHARP was to be used as well as what would be asked of participants. It was presented with a 45-minute PowerPoint presentation, and followed by an open-ended discussion with potential participants. Those who chose to participate were required to read and sign an informed consent document before they agreed to proceed as members of the study.

As outlined in Table 1, initially there were multiple facets to the program that were removed over time so the use of SHARP could be considered independent of scheduled reinforcers. During the first month, participants were asked to briefly journal about an incident four times a week using SHARP. Participants were encouraged to express their views in whatever format was most comfortable for them when journaling (e.g., bullet points, paragraphs, short sentences, etc.). Once participants identified an event for the day, they either described how they used SHARP in the moment, or reflected back on an experience and discussed

Table 1
Program implementation schedule.

Elements	Month 1	Month 2	Month 3	Month 6
Journaling	✓			
Weekly write-up	✓	✓		
Wristband	✓	✓	✓	
Monthly solo interview	✓	✓	✓	
Exit group/solo interview				✓

how the elements of SHARP were either present or lacking. Participants were encouraged to keep the writing as brief or long as they felt necessary.

In addition, for the first two months at the end of each week participants were asked to do an electronic write-up that they sent to the researchers concerning their overall experience with using SHARP through that week. During the write-up participants were asked to reflect more heavily on the overall experience during the week regarding how they used SHARP, report any problems or patterns they noticed, provide potential changes, and elaborate on their experiences with using SHARP. A researcher sent the participants weekly reminders to send in their check-in reports. Three out of the five compliant participants reported to the researchers via email 100% of the time they were asked to correspond; the other two responded 80% of the time. One participant completed all journal entries, and the other four completed at least 10 out of the 16 entries. The three non-compliant participants varied in their response to the researchers, but all responded, adhered to adjusted program arrangements, and attended exit interviews.

As a way to provide participants with visual and kinesthetic cues to do SHARP check-ins, participants were given a silicone wristband and a sticker with SHARP printed on them. During the second month participants were asked to continue wearing the wristband, or have it in a visible location. During the third month of the program, participants were encouraged to decide if wearing the wristband was helpful, and whether they would like to continue wearing it during the third month. All five compliant participants utilized the wristband and sticker by either wearing them, or placing them in visible areas.

At the end of each of the three months, great effort was taken to conduct individual interviews on the phone, and as a last resort via email, and ask participants to reflect on their experiences throughout the month. An unexpected early fire season moved some interviews into the following month. The interviews themselves were semi-structured in nature (Creswell, 2003) and included five questions that were directed at understanding receptiveness (overall experience that month), usability (how, when, and where it was used), and changes that could be made (what was ineffective, effective, and what could be changed). Follow-up questions were included to elicit information based on respondents' answers (Creswell, 2003). Through these inquiries managers' use of SHARP across time was explored. After at least six months had passed from the start date, exit interviews with participants in either a group (50%) or individual setting (50%) were conducted to understand participants' thoughts and feelings of the entire process.

Role of the Researcher

In qualitative inquiry the researcher often has a vested interest in the subject matter and must dance between being

an insider, outsider, or somewhere in between (Dwyer & Buckle, 2012). The first author of this research played the role of insider, and worked closely with participants. As she had been a wildland firefighter of nine seasons she was privy to the "unusual aspects" (Creswell, 2003, p. 183) of the context that a simple observer is generally not (e.g., social acceptance into the group, understanding of pressures felt on the job, and nuances of the firefighting culture). The important aspects of trustworthiness and authenticity among participants were strengthened as the first author discussed her role as interviewer and firefighter. The first author participated in reflexive journaling to acknowledge and maintain awareness of thoughts, opinions, and biases during interviews (Creswell, 2003; Herr & Anderson, 2005; Lincoln & Guba, 1985; Morse & Richards, 2002), and the second author helped provide an outsider perspective and objectivity during the analyses (Kerstetter, 2012).

Data Analysis

All interviews were digitally recorded and then transcribed verbatim. Major findings of the transcribed interviews were then sent to each participant. This was done as a form of member checking to determine if participants felt that an accurate representation of their thoughts and feelings was captured in the interviews (Creswell, 2003); the feedback received indicated that participants felt that the results were accurate. The text from the transcripts, journal entries, and field notes were analyzed in NVivo10, a qualitative analysis package, where it was coded, data reduced and displayed (Miles & Huberman, 1994), and differences reconciled by two researchers to uncover major findings that emerged from the data, as well as to refine categories as needed through the data analysis process (Miles & Huberman, 1994). While the three questions pertaining to receptiveness, implementation, and possible improvements were important guides in the analysis, an open perspective was taken towards the data so that other themes and important elements were captured that further described the program of being mindful and self-compassionate in the wildland firefighting arena.

Results

Results are first presented from the five individuals who adopted all elements of the program. Four of these five participants started using SHARP in the early spring, and due to a suggestion that one participant made of trying to shorten the program, the fifth participant began a shortened version of the program towards late summer. For this individual, the program was shortened by one week for the first three phases, and the final phase was shortened to two months rather than three months. This individual's experiences and ability to capture and use SHARP were similar to the others who followed the longer phases; as

such this individual was included with the other participants who followed and completed the original SHARP program protocol. These five individuals tended to be the youngest participants, and, though not strictly, were at the beginning of their careers. This group was also more likely to supervise individuals rather than groups of individuals or units.

Program Utilization

Participants reported using SHARP in a variety of situations including performing mundane, routine tasks such as packing hose and driving; quiet moments; overwhelming situations; focusing on proper form and exertion during exercise; recognizing individual and environmental triggers; dealing with new or unfamiliar tasks; firefighting; and enduring stressful hiring processes. Most commonly, however, SHARP was utilized in interpersonal situations and conflicts with colleagues, coworkers, and significant others. Through using various strategies (e.g., reflection, journaling, visual cues, discussion, etc.) to employ SHARP in these situations, mindful and self-compassionate qualities became evident when participants discussed how SHARP had affected their performance and ability to cope with stressors both at work and at home. Some of these included re-engaging with what was happening in the moment, calming themselves, becoming more aware of themselves and their actions, aligning their actions with what was important to them, and checking their focus and at times changing focus to what was most important. For instance, Logan (a 29-year-old firefighter with 10 years' experience) stated "when it seems as though I lose focus or tend to go on 'autopilot' I look down at my wristband and regain that focus." Hank, a 46-year-old firefighter with 12 years' experience, described one situation where he was in charge of organizing people with a multitude of tasks during a very busy time where he began to feel overwhelmed, "during all of these shenanigans I kept mentally checking in and out of my head using SHARP. By doing this I was able to calm myself, process the information, be articulate, direct, informative, and smile." Still others mentioned concentrating on the "little things," like being present. One finding that was consistent throughout the process were the times and places that each participant used SHARP. For instance, Kent, Clint, and Hank tended to use SHARP in situations where they felt overwhelmed, or when they could feel their emotions coming to the forefront. For Laura and Logan, it was often during exercise and quieter moments.

While participants were consistent with where they used SHARP, their use of it evolved and participants adapted it to fit their lifestyles. For instance, Kent (a 37-year-old firefighter with 16 years of experience) struggled at the beginning, but by the end of the first month he connected SHARP to past tools he had learned: "I think kinda all those

are little tools that I've had in the past; like little individual parts of SHARP if that makes sense...they kinda fit into SHARP as one or two of the steps. So it kinda helps cement them all together." During the second and third months the way participants used SHARP became more engrained and personalized. For instance Kent and Laura discussed how they had taken SHARP and its intent and molded it to a few personally meaningful questions that helped them more easily capture the SHARP (mindful and self-compassionate) frame of mind. During the third month a shift occurred in that a moral overtone began to be apparent among three of the most active participants. They discussed SHARP bringing attention to aspects of doing "the right thing," along with looking at the self and ways to improve, "I don't quite use the lettering as specifically like in the beginning I did, and now it's just like, 'Is it right? Is it good? Can I do something better?'" (Laura, a 32-year-old firefighter with nine years of experience). By the third month, when we asked participants how they were using SHARP, Hank, Laura, and Kent all responded that they used it more "in the moment," hence exemplifying the mindful component of being present.

By the third month Kent discussed how SHARP had become an "automatic response" that helped him keep "the big picture" in mind when handling stressful situations, both interpersonally and strategically. Laura talked about starting to use it to assess decisions she had made on fires where she was the incident commander, as well as other interpersonal interactions. Hank had started out strongly in the first month and ran into some difficulties as he began the second month; however, he noted, "I felt as though when I was thinking about it, the entire process...I felt as though positive outcomes...were part of the interaction, were part of the end result." Each participant had similarities in how they used it and at the same time had ways of using it that were unique to that individual. As such, there were some commonalities on what had become effective for them and what had made the SHARP tool or process difficult or ineffective.

Program Effectiveness

In general, more engaged participants tended to have more positive overtones, express a desire to learn and grow from their experiences, and describe ways to use SHARP and label them as opportunities in their interviews. Less engaged participants tended to report a mix of positive and difficult experiences, while often focusing on the difficulties, and described SHARP more as a chore than an opportunity. The mindsets of participants that began to show in the first month were often carried forward throughout the entire process. For instance, one participant expressed the lack of desire to use SHARP, because it was difficult to use in that it was not like other fire acronyms (such as LCES that stands for Lookouts, Communications, Escape Routes, Safety zones) that were devised like

checklists and related easily to fireline tactics; whereas, he noted that one had to “think about SHARP” to use it. However, another participant enjoyed SHARP for the reason that it was not like other fire acronyms and checklists, because it caused one to think more critically about one’s circumstances. What was one participant’s bane was another’s aid, and as Laura stated: “it’s like trying to learn anything new. And if you’re not wanting to learn something new...or you’re not open to giving something a shot, it’s gonna be really hard to overcome.” Juxtapositions like the example given above were common from our most engaged participants to our least engaged participants.

When we asked participants about their experiences journaling during the first month they relayed that it could be “tedious” (Clint, a 29-year-old firefighter with 10 years’ experience), a “pain in the butt” (Laura), it “helped cement things” (Kent), and new, but effective, “I’m not a person who normally does that, I thought it was effective; you had to make the time to do it” (Hank).

When participants discussed what had been the most effective part of learning and using SHARP, having visual reminders such as the wristbands and stickers was mentioned frequently. Participants described placing the physical items regarding SHARP in particular spots for reminders, or triggers. At the end of the third month three of the most engaged participants all referenced the importance of the wristband. As Laura stated, “I still find that I do better with it...when I have it on...it keeps jogging my memory.”

Additionally, others recognized value in the journaling and responding with weekly updates (“having the chances for reflection... that’s definitely helpful”—Kent). When the journaling phase was over it had an impact on participants when it was stopped as Hank noted at the beginning of the second month, “the week without the journal...I do have to say...I’ve not thought to engage SHARP.” By the end of the third month he noted that journaling had “kept me engaged; that kept me thinking about it. That gave me a responsibility; that held me accountable.” With the reduced structure of the program a few felt that they had more freedom to explore SHARP and to use it more naturally; others had more difficulty staying on track. The second month marked a significant time for participants regarding their level of engagement and future participation. As Kent remarked, “I experienced that [with] a little less structure...you’re gonna start using it or you’re not.” By the end of the third month the most effective part of SHARP for Laura, Kent, and Hank was taking the time to think deeply about SHARP on a regular basis. Furthermore, Laura and Kent both talked about how they would try not to force it, and would just allow it to come up naturally.

When Hank was asked about anything that had been a barrier or had been ineffective he responded with:

I never felt as though anything was ineffective, but I cant help but think that because I had started to use the model by looking at it and implementing it in my head, that it

was constantly there, in my mind—in the back of my mind to reflect back on it.

Other participants had different experiences and obstacles they encountered. The most common obstacle for participants was finding the time, opportunity, and/or desire to complete journal entries, use the SHARP tool, and make the time for it. Another obstacle that a few participants encountered was getting the word down for each letter of the acronym and understanding the intent of each part.

Suggestions

Beyond these main obstacles, there also came some suggestions that participants felt could help make the SHARP process better for future uses, or where they could see SHARP playing a significant role. Participants rarely changed or added new suggestions during the three months; instead they emphasized, or further elaborated on ideas from previous months. Some of the main suggestions were as follows. The importance of presenting SHARP in a way that emphasizes its uniqueness and difference from other fire acronyms was stressed. As Laura mentioned, SHARP was something that “as a younger firefighter the exposure to it and the continual exposure to it” would help engrain it. She further related it to her experience of solidifying her use of LCES, and the importance of having it emphasized by a respected leader so that it would be taken seriously. Hank saw a role SHARP could play in leadership: “I believe that using this for folks who are in leadership roles would help alleviate a lot of second guessing with building folks in their confidence levels, and just to be able to communicate more effectively.” Last, Kent and Hank both emphasized the importance of clearly outlining the buy-in for people as to why they should invest time in SHARP.

Exit Interviews

Participants shared their final thoughts and comments regarding SHARP at exit interviews that were conducted after participants had engaged with the program for at least six months. At this point, all reinforcing elements of the program had officially been removed, although some individuals chose to retain the visual cues (wristbands and stickers). It became apparent that there was a deeper, more holistic array of factors that had been influencing participants’ use of SHARP. As such, at the beginning of the last session participants were asked about these factors and in particular the contexts in which that they found themselves during the last phase. These insights informed the researchers’ understanding of program utilization and program effectiveness across an extended period of time.

Three of the participants worked on the same district and discussed a summer that was uncommon for the area; the fire season started earlier than normal, was busier, and

consisted of surprising fire behavior. When asked to describe it, they used phrases such as “definitely had to be on your ‘A’ game I think more often than not” (Logan), or “you had to work a lot harder to just make sure that you stayed on top of things and that you were really aware of what was going on” (Laura). All three of these participants were in assistant supervisory positions, and would often see and work with each other. Kent experienced a busy summer as well, but for different reasons. He had been used to busy summers of working on the fireline supervising a group or groups of individuals. However, due to his job transition, he found that he was dealing with new types of problems often involving policy and people and said “I was overwhelmed quite a bit.” On the other hand, when discussing the context with Hank, an assistant supervisor, he focused on post-fire season events and intense personal interactions for the final phase. These contextual factors and situations significantly affected participants’ experiences with SHARP as they moved through the entire program.

There were three main commonalities across the experiences of Laura, Clint, and Logan. All three talked about the effectiveness of seeing or hearing others talk about SHARP around the office; it often triggered them to think about the program, or write in their journals. Second, after being removed from the journaling all three agreed that it had been very effective in having to take the time to think about SHARP in relation to themselves. Third, when they talked about utilizing SHARP none used the whole acronym, but each grasped onto parts that got at the intent of SHARP, and related it often to tactical fire tools and on-the-job training that encouraged SHARP-like processes. For instance, Clint was able to find a link with the first component of “stop,” which for him consisted of taking the time to pause and think about what was going on around him; Logan connected with “act” because it was important to him how his actions affected his crew and others. For Laura, as she discussed previously, it was rolling it into a few short, meaningful questions that mainly related to “stop,” “here,” and “act.” In regards to situations and times of when they would use SHARP, Clint found that it was often an afterthought, where he could see his actions either aligning or not aligning with SHARP, and made the comment, “I think if you’re doing your job right, you’re naturally going to be implementing something like that [SHARP].”

The other two participants were in different locations and found themselves using the whole acronym at the beginning and then condensing it by the end of the third month. Kent mentioned how he would often see the sticker above his desk as he would take mental pauses and remarked, “it seemed like as the summer went on, I was taking a different view of things.” He continued by saying, “it kept me focused on what I needed to be working on. And it just helped me kind of get a better result.” Furthermore, he talked about how the first elements of SHARP of having to stop and assess were not anything new to him, as he had

used a similar pattern with his past crew, but “how should I act, what’s going on, am I taking care of myself? Those were the things I had to kind of learn or to make more natural.” Hank discussed how he had kept the sticker above his dresser drawer at his home where he would see it in the morning. He discussed how by having it present in his everyday life, when the time came to apply it in critical situations, it was available as a guide to help him enact the best parts of himself:

What am I thinking and feeling? That’s their opinion about it, they can say what they want, it’s my reaction to what they are saying that really dictates am I going to be able to look at myself in the mirror at the end of the day and ask myself, did I put my best foot forward?—Yes, I did because I stopped to be sharp.

While none of the participants found that they were worse for going through the SHARP program, some found more value and benefit than others. Both Hank and Kent reflected on their experiences of how SHARP helped them refocus, see their priorities more clearly, deal with unknowns, regulate their emotions, communicate more effectively, and maintain a “sunnier” outlook—all common outcomes associated with mindfulness and self-compassion. Hank went on to say, “It [SHARP] allows you to bring the most important aspects of the positive things that you value to the forefront into your life...and the rest, it also could help you look at it as water off a duck’s back.”

Although most participants were able to find value in how SHARP was presented, they had been thinking more about its implementation over the final months and how to infuse a tool like SHARP into the fire culture. First, when asked if any changes should be made to SHARP, especially as Laura, Clint, and Logan did not find use in the acronym as a whole, they all recommended keeping it the same, “because everybody learns differently...or takes what they respond to” (Logan). Second, seeing SHARP repeatedly was emphasized by way of employing the visual cues. Third, there was agreement in teaching SHARP early in firefighters’ careers, with more depth added as they progressed into their careers because having the cognitive abilities, appreciation for, and maturity to grasp the concepts was seen as important. As Hank stated about his experience, “[I] was in a particular point in time in my life where I had had some background and life experience where this mindset made sense.”

Fourth, as far as its delivery, it was pointed out that six months was not feasible for training the masses, but that condensing it down into critical trainings that occur during the first few weeks of the fire season, or other trainings where SHARP could be reinforced and used in one setting. It was also suggested that SHARP materials be available on websites such as the Lessons Learned Center for fire, or using SHARP in facilitated learning analyses, which guide accidents and incident reviews.

Non-compliant Study Participants

Two of the three non-compliant participants reported that they stopped following the SHARP protocol within 14 days from its inception, as they quickly found that their circumstances had changed and their available time to invest in SHARP was gone due to fires, dealing with hiring problems, and other complex job-related issues. Additionally, the elements of SHARP were not anything new or novel, but reinforced important practices and habits (Tony). Still they reported that they felt SHARP was valuable. As such, a compromise was reached between the researchers and these participants. While not explicitly using the SHARP process, or following a routine, these individuals evaluated SHARP in relation to their own developed practices, fire trainings, and fire-related experiences. There were three main topics that emerged: (1) SHARP and the current fire curriculum, (2) the need and role of SHARP in developing fire personnel, and (3) the importance of developing self-reflection.

When participants discussed implementing SHARP, a lack of human factors training in the fire curriculum was cited. As Steve (a 59-year-old administrator/firefighter with 39 years of experience) stated, “there’s such an emphasis now on this type of thinking, yet it doesn’t seem to be in our curriculum.” Tony (a 38-year-old firefighter with 19 years of experience) added that courses are “constantly focused on operations and tactics...where do you ever get the other half of that in order to comprehend and be tactfully applying these strategies?” further emphasizing, “you’re dealing with people as much as you are with fire...and usually what’s going to bite you in the butt first is the people.” While participants in this group talked about having developed similar thought processes to SHARP, an experience highlighting an opposing pattern while working on an incident command team with the highest complexity level (Type 1) was discussed by Steve and Tony. Below is Steve’s description of working on this team:

Two or three different times this year, on some very intense incidents...it would have been so helpful if the individuals creating the stress could have thought what am I outwardly doing? [Act in SHARP] What am I thinking and feeling? [Respond in SHARP] And they weren’t in touch with themselves, I don’t think. They were totally not in touch with how they were affecting the team. And that was a problem. And as far as I’m concerned not acceptable at all. So with that said...I think it [SHARP] would help these people...with that fire god mentality.

Kurt (a 41-year-old firefighter with 24 years of experience) notes the need to stay out of developing an egoistic mentality and “to keep things fresh and stuff, I know we’re all old blood...all you need to do when you’re old blood is pick the scab.” The other two non-compliant participants also

emphasized the importance of developing self-awareness, though potentially painful as Kurt recognized. For instance, Steve has expanded a common awareness concept in fire with those he works with to include self-reflection: “I tell every division supe, you need to size up your people, not just the freaking fire, but your people. And this [taps SHARP sticker] you’re sizing up yourself too.” While the non-compliant participants initially saw many obstacles to SHARP, by the end they saw value in and need of it when allowed to analyze it from different frames of reference.

Discussion

It is clear that participants had unique experiences with SHARP. In terms of *receptivity*, fire personnel were all open to trying SHARP, and through discussion with researchers or close others found ways to connect with SHARP with some having more success than others. Participants *implemented* SHARP in a wide range of situations, though mostly in the work setting when dealing with intense inter- and intrapersonal situations. When fire personnel were asked about *ways to improve* the program, all recommended keeping SHARP the same and keeping the various visual and tactile tools of using SHARP available to users. *Recommendations* often addressed ways to make the program more fitting to a broader array of fire personnel and suggested delivering the program as part of leadership training courses that already exist. As far as SHARP’s effectiveness, participants reported positive outcomes when using SHARP that closely align with outcomes found within other mindfulness and self-compassion interventions.

The question that will be important to address in future implementation is why some had more success with SHARP than others. Research around PPIs answers this question well. PPIs are driven by practices and intentional actions that promote subjective well-being, happiness, and positive cognitive processes (Sin & Lyubomirsky, 2009), and in which mindfulness and self-compassion fit well. Within PPIs Lyubomirsky, Sheldon, and Schkade (2005) discuss the importance of having a person–activity fit, which notes that all people are different in their strengths, interests, values, and needs. As such, different activities, processes, and programs will appeal to different people and have different effects. While SHARP was designed specifically for fire personnel and others in similar occupations, each person had unique ways of applying or thinking about SHARP, had different take-away lessons, and had varying degrees of engagement. Likewise, a mindfulness-based intervention instigated by Jha, Stanley, Kiyonaga, Wong, and Gelfand (2010) found that the soldiers in their study also varied in their level of engagement and outcomes.

Additionally, Lyubomirsky et al. (2005) observed that in order for a program or intervention to be effective for participants, they must first want to engage in the activities at the beginning and overcome the hurdles of creating new

habits or ways of doing things; if they do not find the activities intrinsically interesting or rewarding they may struggle to maintain those activities. This is reinforced by a recent mindfulness intervention in the work arena that noted that putting in the time to develop mindfulness is difficult and was found to hinder some participants and their participation (van Berkel, Boot, Proper, Bongers, & van der Beek, 2013). Some of the participants in the current study struggled with the “enjoyment” of writing in the journals; nevertheless, all participants were able to recognize the value and the meaning behind the writing.

Next, in a meta-analysis of 51 PPI studies by Sin and Lyubomirsky (2009), it was noted that participants who came into interventions more inquisitive, optimistic, open, and wanting to find value in the intervention were more likely to find it. The same was evident in the current study as engaged participants mentioned that to get the full use of SHARP, one needed to want to learn it. Furthermore, a second finding of Sin and Lyubomirsky (2009) was that the benefits of PPIs were positively correlated with age; possibly due in part to the ability to better self-regulate the self and one’s emotions. Similarly, in this study with the compliant participants it was seen that the two youngest participants (29 years old) seemed to struggle the most with the program, and as the age of our participants increased so did their level of engagement and value gained. Third, Sin and Lyubomirsky (2009) noted that the PPIs with a “shotgun” (p. 483) approach of offering multiple ways of using or practicing PPI strategies appeared to be more effective than those that could only be used in one way. All participants mentioned something to the effect that they enjoyed the flexibility to use different strategies that fit their individual needs.

In the meta-analysis by Sin and Lyubomirsky (2009) having one-on-one interactions between participants and instructors was found to be most beneficial for participants; this is also consistent with a recent study by van Berkel et al. (2013) that looked at a mindful intervention to improve work engagement and energy balance. Furthermore, a common denominator in mindfulness intervention research is the included contact with a mindfulness coach, expert, or researcher who can help guide participants such as in the Mindfulness-Based Stress Reduction program (Kabat-Zinn, 1990) and the pilot study of the Mindful Self-Compassion program (Neff & Germer, 2013). Notably, this was found in the more engaged participants in this study as they relayed the importance of being able to converse and discuss what they were doing and how they were using SHARP with the contact researcher.

Beyond aspects that have been found in successful interventions, a crucial question posited by Patterson, Grenny, Maxfield, McMillan, and Switzler (2008) is: what were the vital behaviors that made the program successful? In order to address this we look at the 10 processes of change found in the Transtheoretical Model (Prochaska, Redding, & Evers, 2008), which describe the visible and

cognitive activities that individuals go through when they are integrating changes in their lives. Three processes were particularly prominent among our participants. The first, *self-reevaluation*, is when an individual realizes that the new behavior change is an important part of oneself. A process like this took place with participants when they integrated and associated SHARP to their values by creating a link between what was important to them and how SHARP helped them achieve it. Second, participants used *environmental reevaluation*, which consisted of identifying their behaviors when they led to ideal, SHARP-like outcomes versus when they did not, and the effect it had on their environments. Third, participants used *stimulus control* when they used the different SHARP tools as cues and guides for their behavior. For instance, putting the sticker in visible places where they would be reminded of SHARP. While these were not the only effective processes found, they provide guidance for future uses.

Limitations and Future Directions

One clear limitation in this study was that three of our participants did not participate in the SHARP program the way it was intended. However, they were able to find value in the SHARP program when given the freedom to explore it in their own way. Future directions should carefully consider where individuals are in their career, and the approach used. Other limitations include the multiple strategies that were used in the program (journaling, online reports, visual cues) that were embedded to facilitate the use of the program yet could make the demands of the program prohibitive for some participants. Additional research is needed to discern the exact elements of the program that are necessary to achieve compliance and positive outcomes. While an unpredictable fire season impacted the study in that it created a challenging time for fire personnel to attend to the additional demand of experimenting with SHARP, arguably, such circumstances speak to the ecological validity of the study and provided a stringent test of incorporating SHARP in the field even in the midst of heightened conditions. Essentially, it was difficult to try something new when facing many demands, but fire personnel who valued it made time for it, and used it when the operational tempo was high. Finally, there was a wide range of engagement levels from participants, indicating the importance of understanding the role of individual differences when applying the SHARP concept. As such, future directions will need to keep in mind the importance of implementing SHARP in a flexible manner for a variety of people who are in a chaotic environment.

Conclusion

In summary, through this feasibility study, SHARP was found to be a viable tool for fire personnel to use when

facing challenges in overwhelming, interpersonal, intrapersonal, environmental, mundane, performance-enhancing, and critical decision-making circumstances. The variety of uses and benefits that participants experienced using SHARP speak to the potentially wide applicability for developing oneself, and attaining a range of desired personal and professional goals. For the potential use of SHARP in the future, it will be important for practitioners to employ strategies that incorporate multiple ways of using SHARP, trying it in different settings, making sure that it is visible, and having contact with an expert while developing it. With that said, future use and exploration of SHARP were encouraged by all participants.

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