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Commentary on the Culture of Prevention

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Abstract
Despite significant progress in prevention science over the past 30 years in developing evidence-based interventions and policies, there has not been equal success in attracting support from policymakers and gaining acceptance by communities. In recognition of this gap, the editors of *Prevention Science* put out a call to scientists to help clarify and define the concept of a "culture of prevention." Such a culture would influence the creation of an infrastructure for implementing and sustaining the most effective strategies informed by research. The journal call stated a culture of prevention was a "general orientation or readiness of a group of people… to address problems by using a preventive, rather than a reactive approach." This commentary examines the concept demonstrated in the array of papers presented here in which the "culture of prevention" is applied in different contexts—occupational safety and health, substance use, school, governmental, community, around problem behaviors, and violence. It is important to note that the papers represent perspectives and experiences from several countries, including some cross-national experiences providing an international framework. While a final definition awaits further research, the commentary summarizes important elements that might constitute that evolving definition and pave the way for the implementation of more effective prevention programming.

Within the context of the COVID-19 pandemic, writing a commentary on the concept of establishing and maintaining a "culture of prevention" takes on a more emergent and relevant significance. At what cost in human lives has the failure to have a universal prevention culture with a public health infrastructure in place at this time! This represents a clash between science, economics, politics, and "living." Yet as represented in the papers on the "culture of prevention," there needs to be synergy across these domains for a "culture of prevention" to get established and then survive. And, similar to the HIV/AIDS epidemic in the 1980s, while we seek necessary medical and pharmacologic solutions to address the pandemic, we are employing behavioral strategies—now wearing masks and social distancing—to protect until biological preventives become available. A review of the literature on the responses to and lessons learned with regard to the H1N1 and H5N1 epidemics (e.g., American College of Physicians et al. 2006; Fineberg 2014) lays out a planning process to assess and respond to growing infections. If nothing else, our "new normal" of life in this pandemic underscores the need for a universal embrace of a "culture of prevention."

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Despite advances in prevention science and their application to evidence-based prevention interventions and practices, the prevention field is challenged by its history of being overridden by a medical culture to treat. While the public health model of prevention with its three prongs—primary, secondary, and tertiary—has been widely accepted for communicable diseases, behavioral health, as an emerging area, addressing non-communicable diseases and conditions, has the potential to impact health worldwide. And, while primary prevention is incorporated into the public health model, the concept is treated broadly and does not "fit" with a behavioral prevention explanation of etiology. Behavioral health (i.e., health issues that are linked to risky lifestyle choices or behaviors such as smoking, alcohol use, risky sexual behaviors, dietary choices, lack of exercise, and failures to use safety precautions while driving or sailing) accounts for an estimated 60% of the world's deaths (World Economic Forum 2015). None of these "choices" are encompassed in the public health model but rather a risk model (Gordon 1983) that has greatly influenced the field of prevention science.

While the medical model "let's find a cure" predominates, the role of prevention, particularly for behavioral risk issues, is coming into its own. Advances over the past 30 years in developing effective prevention interventions that reduce the onset of problem behaviors and related health issues have become accepted by many health professionals. Yet the adoption of preventive over treatment approaches has not been embraced universally. Within this context, there has been a

growing interest in the creation of a "culture of prevention" that has permeated the health and occupational world (Salminen and Lee 2014). As discussed later, these papers in this special issue of *Prevention Science* represent some of the current concepts within this movement.

Why is establishing a culture of prevention important? Having a culture of prevention helps to establish a place for evidence-based prevention services and activities to be adopted and sustained (Sentell et al. 2018). Without such a "culture," funds are misspent on "easy" and ineffective prevention strategies that may have iatrogenic effects (Heikkilä et al. 2020; Moos 2005; Werch and Owen 2002). Furthermore, fostering a "culture of prevention" should be supported across the board and permeate the everyday lives of broad populations. The challenge to a universal embrace of a "culture of prevention" seems to be related to the economic status of nations as well as communities. A "culture of prevention" appears to be more likely to be embraced by high- and middle-income countries and communities. In contrast, low-income countries and communities have other life priorities, although a focus on prevention for them has the capacity to improve health and enhance productivity (Bloom and Canning 2008; Eisenberg and Neighbors 2007).

Exploration of the Constructs of the Concept "Culture of Prevention"

Like the experience of the US Society for Prevention Research (SPR) Task Group in its efforts to define "prevention science", the papers included in this special issue of *Prevention Science* reflect more about what a "culture of prevention" does and what structures are needed to sustain "it" without defining what the "it" is. The SPR Task Group was guided by asking the question, "In what ways is prevention science different from its roots based in fields of expertise such as epidemiology, psychology, sociology, neuroscience, and statistics?" The group focused on three domains that were felt to constitute "prevention science": epidemiology, prevention intervention development, and implementation and prevention research methodologies. This seems to be the case with defining the concept, "culture of prevention."

Review of Articles on the Culture of Prevention

Each of the papers in this issue included elements or constructs of the concept "culture of prevention" applied in different contexts—occupational safety and health, substance use, school, governmental, community, around problem behaviors, and violence. The terms used by the authors of the articles in response to the requests for papers, Promoting a Culture of Prevention: An International Perspective, reflected the "general orientation or readiness of a group of people…to address problems by using a preventive, rather than a reactive approach." Also, the papers represent perspectives and experiences from several countries, including some cross-national experiences.

Several features are shared across the articles such as shared "ownership" across key sectors such as the community, practitioners, policymakers, and funders; building on existing resources; bi-directional communications; enhancing the knowledge base and attitudes regarding risk factors; and the importance of sustained implementation of targeted, evidence-based interventions. Sentell et al. (2018) define the culture of prevention as "…orientation to population health that fosters a preventive, rather than a reactive, approach to health…"

The importance of having a culture that crosses national borders and professional organizations, disciplines, and personnel also was underscored in several of the papers. Parra-Cardona et al. (2018) rely on the United Nations' promotion of a culture of prevention of international conflict, suggesting a culture of prevention should include short- and long-term strategies that "encompass multiple prevention goals" that "facilitate the generation of policies to ensure sustainability."

A fundamental construct mentioned in the papers was "readiness" at many levels, from the broad community/state/governmental level to the awareness and support at the population/program/and individual level. In Mauricio et al. (2018) focusing on the Family Check-Up, and for Exner-Cortens et al. (2019) establishing a province-wide "practice and policy change initiative" on violence prevention, this was expressed as "readiness for the implementation" and on "readiness building," respectively. In contrast, for Heikkilä et al., this is explicitly expressed as a "readiness" to "support evidence-based preventive interventions." "Readiness" is also a concept that has multiple meanings and draws from several theories, including Rogers' diffusion of innovation and taps into the foundations of implementation science, the adoption of innovation (Estabrooks et al. 2018), or evidence-based interventions (Ober et al. 2015). Weiner (2009) wrote about a "theory of organizational readiness" to identify organizational factors that need to be in place when an innovation is introduced into an organization or community such as prevention interventions or policies. Important factors mentioned include not only a shared commitment to change but also the capacity to change.

"Community readiness" also involves the idea of shared commitment to change and capacity to change, which have dominated the field of substance use prevention (National Institute on Drug Abuse 1997, 2003; Oetting et al. 1995). Several research groups have examined the components of "community readiness" that have been used in the field. Castañeda et al. (2012) in their review of existing models describing community readiness found four primary constructs: (1) community and organizational climate that facilitates change, (2) attitudes and current efforts toward prevention, (3) commitment to change, and (4) capacity to implement change.

It would seem that "readiness" to adopt innovative interventions may be a key element of a "culture of prevention" (Ruest et al. 2019; Shea et al. 2014; Storkholm et al. 2018).

Defining "Culture of Prevention"

Salminen and Lee (2014) in their review of the literature seeking a definition of "culture of prevention" concluded that there "is no generally accepted definition of this concept", and as the concept has not been operationalized, it is not a "scientific concept" but is more "an umbrella concept for improvement measures". The Association of Southeast Asian Nations (2017) in its Declaration on Culture of Prevention for a Peaceful, Inclusive, Resilient, Healthy, and Harmonious Society stated that promotion of a culture of prevention focused on:

- Understanding the root causes and consequences of violent extremism and other forms of violence and deviant behaviors at individual, organizational, and institutional levels through risk assessment, research, forecast, early warning, and other evidence-based methods
- Adopting a mindset change from a reactive to a preventive approach
- Inculcating share values such as peace, harmony, intercultural understanding, the rule of law, good governance, respect, trust, tolerance, inclusiveness, moderation, social responsibility, and diversity
- Developing effective upstream preventive policies and initiatives such as transformative social protection, public information, responsible use of media, as well as strengthening the existing values-based education in schools and institutions

The "call for papers" used for this special issue stated that the "culture of prevention" is a multidimensional concept that represents a "general orientation or readiness of a group of people…to address problems by using a preventive, rather than a reactive approach." It was suggested that the "culture of prevention" is supported by "a) a supportive policy and legal framework, b) scientific evidence and research, c) coordination of multiple sectors and levels …involved, d) training of policymakers and practitioner and e) commitment to provide adequate resources to sustain the system in the long term." The papers addressed these issues within an international framework. But the construct of a "culture of prevention" and the operationalization of the construct remains to be developed. The current period of the COVID-19 pandemic, social/physical distancing, gives relevance to this effort.

Let us explore the foundation of this concept. It is an understanding of the etiology or "cause" of the problem and that there are effective responses to address or mediate the potential negative trajectories in the case of vulnerability or to reinforce positive actions that are anticipated to lead to positive outcomes. It is a belief that prevention "works," a belief that is so strong that efforts are made to support prevention efforts in a variety of settings and around a variety of issues.

However, as we learn from the literature, a belief in the competency to engage successfully in these preventive health behaviors is important as well as having these beliefs reinforced by the ecological context at the micro- and macro-levels (Kasl and Cobb 1966; Kegeles et al. 1965), the health belief model (Rosenstock 1974), and the theory of planned behavior (Ajzen and Fishbein 2005). The model below merges the components of these latter two theories about health behavior within the contexts of our micro-level (families, schools, peers, faith-based organizations, workplace) and macro-level (communities, states, nations) environments. If these models are close to accurate in predicting behavior, what factors then house the concept culture of prevention?

It is suggested, therefore, that the culture of prevention is represented by the core of Fig. 2, the behavioral beliefs and attitudes that are held about the health behavior, the perceived normative beliefs and subjective norms regarding the health behavior, and not only having the competencies and skills to perform the health behavior but also the confidence that one can perform it. These are shaped very much by the micro- and macro-level environments as supported by the papers in this issue.

A major impediment to the embrace of a culture of prevention not only at the governmental levels but also among public health and prevention professionals and the public has been the lack of science to provide the strong normative support to engage in prevention strategies, for having the appropriate skills to perform prevention activities, and, most challenging of all, beliefs in the efficacy of prevention strategies. Outside of the great successes of the vaccination programs for many infectious diseases, the behavioral field of prevention has been most successful in reducing smoking in many countries. There are important principles that arise from the tobacco experience of great interest to this issue. First were the many research studies that found an association between smoking and health problems, including the groundbreaking studies that demonstrated the involuntary effects of smoking on nonsmokers—"second-hand smoke." These were replicated across cultures and geographic boundaries (Doll and Hill 1950; 1986 Surgeon General's Report on the Health Consequences of Involuntary Smoking; Wynder and Graham 1950). Second was the importance of having national acknowledgment of the association of smoking on health and having a significant health leader, the US Surgeon General, giving this issue a lot of official attention (National Academy of Science 2007). Third, effective interventions needed to be available and ready for implementation (Holder et al. 2000; Jacobson and Wasserman 1997).

Multiple interventions were put into place not only policies and communications but also other types of behavioral interventions such as smoking cessation programs and school-based curricula (Hopkins et al. 2001). Furthermore, efforts were made to combine prevention AND treatment in an array of services. Finally, these interventions had to be sustained over time, and their impact monitored by several agencies, including the Surgeon General's Office, the Center for Disease Control and Prevention, and the Food and Drug Administration.

As an example of the impact of new laws and policies combined with enforcement that changed behaviors first and by changing behaviors changed norms that eventually had a generational effect is the smoking ban implemented in France in February 2007, at first for workplaces, shopping centers, airports, train stations, hospitals, and schools and later extended to meeting places (bars, restaurants, hotels, casinos, nightclubs). A longitudinal study by Fong et al. (2013) showed that by 2012, smoking decreased significantly in these public places while also leading to high levels of support for the bans by the public. This study, along with the papers in this issue of *Prevention Science*, underscores the great challenge to ensure that a culture of prevention permeates everyday life and transfers from generation to generation while at the same time can integrate new science-based information that informs not only the prevention workforce but also the public. Such a venture requires the incorporation of an organizational structure and system of services at all levels of government. Such a system is suggested in the United Nations Office on Drugs and Crime and the World Health Organization's International Standards on Drug Use Prevention (2013, 2018) with critical components of a supportive policy and legal framework; reliant on scientific evidence and research; has the ability to coordinate multiple sectors and levels (national, sub-national, and municipal/local); includes a system to train and credential policymakers and practitioners; and is committed to provide adequate resources and to sustain the system in the long term (UNODC/WHO 2018; pp. 50–59).

We are fortunate today that through translational neuroscience (Fishbein and Dariotis 2019; Nielsen et al. 2012; Roos et al. 2018; Vanyukov et al. 2016), we have a much better understanding of the etiology of risk, i.e., the interaction

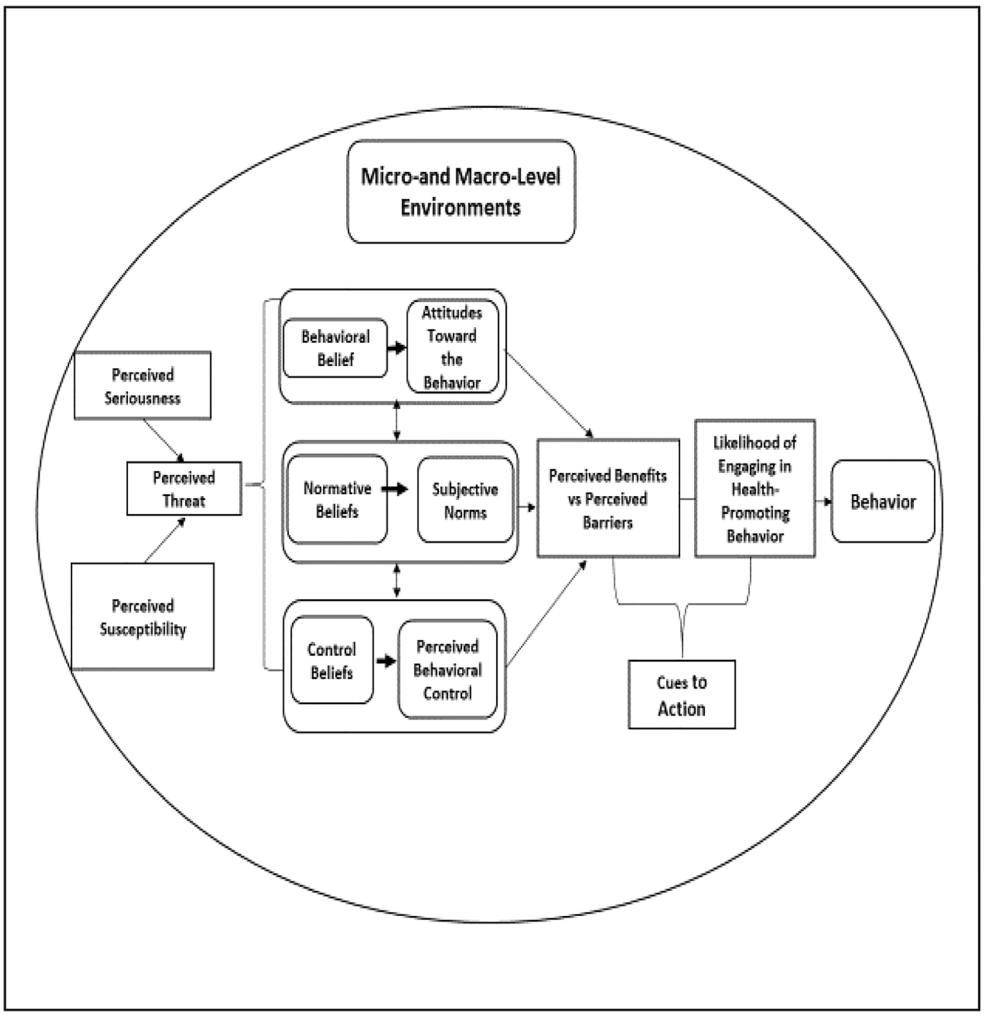

Fig. 1 Merged theoretical models

between the individual biological self and the micro- and macro-level environments that influence our attitudes, beliefs, norms, and our behaviors. We furthermore have insights into the active "ingredients" of evidence-based prevention that rely on theories of behavior change, of communication, and of learning that address either individuals directly or through micro- and macro-level influences such as parents, school staff and structure, workplace colleagues, the media, enforcement of laws and regulations, and community norms.

To build a culture of prevention warrants efforts to educate at all levels. In their paper, Heikkilä et al. (2020) provide the results of the United Nations Office on Drugs and Crime efforts to provide information on evidence-based prevention to governmental decision-makers through regional seminars targeting low- and middle-income countries. The aims of these seminars were to "…create readiness, demand, and capacity for evidence-based prevention programming." Results of the evaluation of these seminars are promising as they suggest that decision-makers, when exposed to the science behind evidence-based prevention interventions, grasp the processes associated with effective interventions and may then support prevention programming in their areas of influence.

Other papers from this special issue suggest using programs to either support a "culture of prevention" through the implementation of evidence-based prevention interventions such as the Alberta Healthy Youth Relationships that address intimate partner violence (Exner-Cortens et al. 2019), the "Si Je?" ("How are you?) that address health-risk behaviors in Albania (Sentell et al. 2018), or through the dissemination of parenting programs aimed at reducing child maltreatment and improving parental and child mental health in low- and middle-income countries (Parra-Cardona et al. 2018). The successful implementation of these programs is part of building a culture of prevention from the ground up—a way of creating a demand for these effective strategies that depend on prevention science.

Mauricio et al. (2018) highlight the commonality of facilitators and barriers and the need for readiness building in their work in disseminating Family Check-Up in the USA and Sweden. Their findings reinforce the importance of applying an implementation science framework when introducing evidence-based prevention programs internationally. Their findings also serve to identify factors that need to be addressed in developing a culture of prevention nationally as well as cross-nationally.

The paper by Rowland et al. (2019) is important for understanding what is needed to build an international culture of prevention as it supports the concept that the structure and predictors of adolescent problem behavior are universal and point out that noted differences reflect policy and cultural contexts. These factors, relevant to the "perception" boxes in

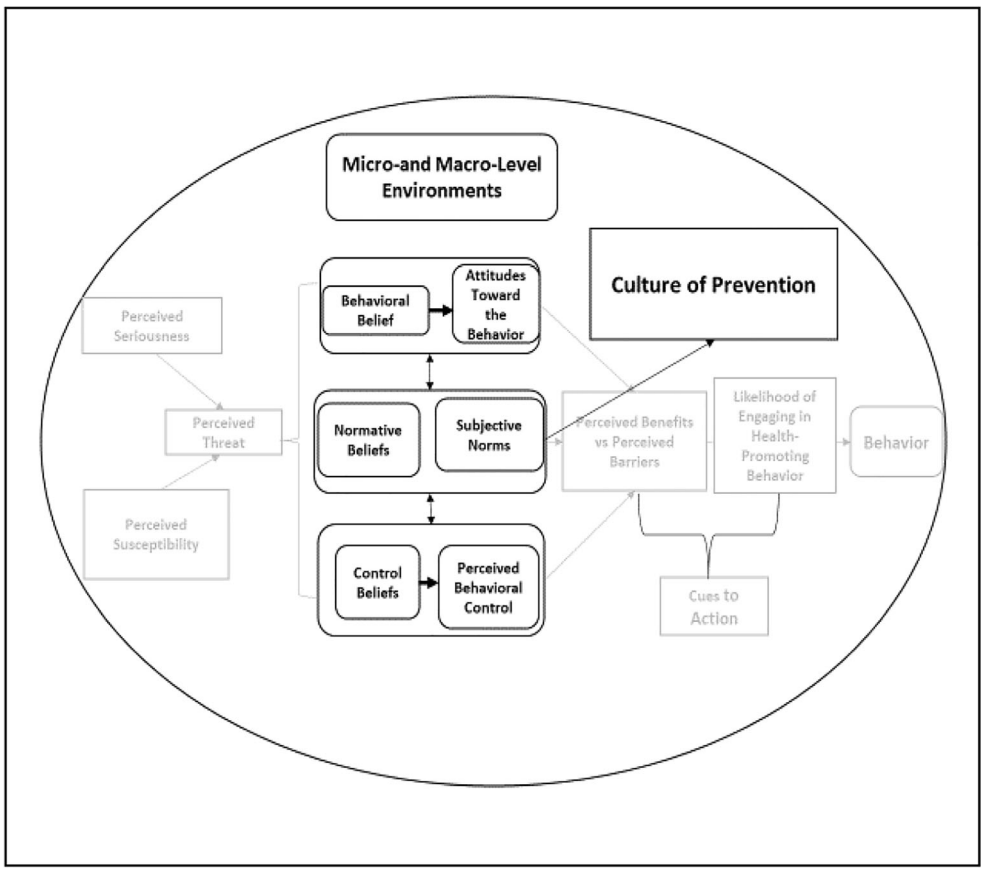

Fig. 2 Culture of prevention

Fig. 1 (perceived seriousness and perceived susceptibility leading to perceived threat) are key to understanding the risks to individual, family, and community. Having in place beliefs that the threat can be mediated or ameliorated through evidence-based prevention interventions in a community that supports these interventions will lead to a readiness for participation in the intervention Fig. 2.

However, creating a system or infrastructure to implement and sustain prevention interventions is complex and requires partnerships at all levels and resources (Bollmann et al. 2020; Murphy et al. 2018). The United Nations Office on Drugs and Crime (2013, 2018) in the publication, International Standards on Drug Use Prevention, presents a national comprehensive system to support evidence-based prevention that includes an array of services and resources. Indeed, a system such as that outlined has the potential to promote a culture of prevention. To sustain such a system requires a bottom-up as well as a top-down communication system to be fully effective (Bollmann et al. 2020; Parra-Cardona et al. 2018).

Conclusion

Like having a universally accepted definition of prevention, having a universally accepted definition of a culture of prevention is important for setting a context for support of prevention behaviors and for prevention programming that instills the beliefs that these behaviors will result in positive outcomes, reinforces attitudes in support of these behaviors, and enables the performance of the behaviors with ease. Such a context must be universally affirmed and embraced with suitable governmental structures for support. The advances in our understanding of the etiology of risky health behaviors and in our ability to intervene to change them when they occur and to reinforce positive behaviors set the foundation for the next steps. The papers in this special issue of *Prevention Science* begin to set an agenda for these next steps. Such an agenda should be developed with the US and E.U. Societies for Prevention Research along with key national and international public health agencies.

Compliance with Ethical Standards

Conflict of Interest The authors declare that they have no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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