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Using Social Marketing to Address Barriers and Motivators to Agricultural Safety and Health Best Practices

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ABSTRACT. Social marketing is an intervention development strategy that pays considerable attention to *barriers to* and *motivators for* behavioral change or adoption of recommended behaviors. Barriers are *obstacles* that prevent individuals from changing or adopting behaviors and are often referred to as the “cons” or “costs” of doing something. Motivators, on the other hand, are *factors* that encourage individuals to change or adopt behaviors and are often referred to as the “pros,” “benefits,” or “influencing factors” of doing something. Importantly, social marketing does not target education or knowledge change as an end point; rather, it targets behavior change. Studies across several types of desired behaviors (e.g., smoking cessation, weight control, more exercise, sunscreen use, radon testing) using the Stages of Change model have found systematic relationships between stages of change and pros and cons of changing behavior. A review of literature identifies numerous research and intervention studies that directly reference social marketing in agricultural safety and health, studies that identify reasons why parents allow their children to be exposed to hazardous situations on the farm, and reasons why youth engage in risky behaviors, but only two studies were found that show evidence of systematically researching specific behavioral change motivating factors. The authors offer several suggestions to help address issues relating to social marketing and agricultural safety and health.

KEYWORDS. Agricultural safety and health, motivators and barriers, social marketing, stages of change theory

Occupational injury, illness, and disease risks in agriculture are well documented. For example, the preliminary work fatality rate per 100,000 workers in the Agriculture, Forestry, Fishing, and Hunting sector in 2010 was 26.8. This work death rate is 7 times the all-industry work death rate of 3.5.¹ Articles published in the July–September 2010 issue of the *Journal of Agromedicine* provide a good overview of hazards and risks in agricultural work. Other articles

in this issue help make connections between children and agricultural work and worksites. This article discusses how social marketing techniques, and in particular the concepts of barriers and motivators, can be used to influence agricultural safety and health best practices and approaches to effective interventions. Social marketing is an intervention development strategy that pays close attention to *barriers to* and *motivators for* behavioral change or adoption

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of recommended behaviors.² Social marketing is just one type of intervention development strategy that utilizes the concepts of barrier and motivators. A value of social marketing is that it pays considerable attention to these concepts, while also providing strategies and techniques for using barrier and motivator information to design intervention programs.

Social marketing, in the context of safety and health research to guide approaches to effective interventions, means finding out what a target population's barriers and motivators to behavior adoption are, and then designing interventions to target those behavioral influences. Importantly, social marketing does not target education or knowledge change as an end point; rather, it targets behavior change.^{3,4} Lefebvre and Flora⁵ identify eight essential social marketing components (see Table 1). Central to understanding how social marketing techniques may be used to guide interventions is an understanding of conceptual differences between barriers and motivating factors and how each can be used to design interventions and promote safety and health best practices.

Social marketing has been most widely used and explored in the public health community. From the public health perspective, social marketing has similarities to other community-based participatory approaches. Both methodologies are based on interaction with the community or target population through focus groups or similar activities to gather information

that is later used to develop interventions for that same population. Social marketing, as referred to in this article, is different than marketing through social media such as Facebook, Twitter, Blogging, YouTube, or other types of personal or group contacts, even though social marketing can include social media.

BARRIERS VERSUS MOTIVATORS

Barriers are *obstacles* that prevent individuals from changing or adopting behaviors and are often referred to as the "cons" or "costs" of doing something. Financial cost and time are two commonly referenced barriers in agricultural safety and health. Barriers can be removed by offering monetary compensation, demonstrating how the recommended behavior will save time, or by reducing the time required to engage in the behavior.⁴⁻⁶

Motivators, on the other hand, are *factors* that encourage individuals to change or adopt behaviors and are often referred to as the "pros," "benefits," or "influencing factors" of doing something. Personally experiencing a near miss, e.g., almost falling off a tractor in front of a rear tire as an extra rider, could motivate a farmer to follow recommended safe practices about riding extra on tractors. Fatalities to family members or neighbors also motivate individuals to change behaviors to prevent similar incidents from happening to them or their family.

Considering both barriers and motivating factors is like coming at a single problem from two different angles. For example, if financial cost is identified as a primary barrier to adopting a recommended behavior, then removing that cost may seem like the only thing necessary to achieve an effective behavioral intervention. However, effectively changing behavior often requires the strategic application of incentives that make the behavior easier and rewarding.^{2,7}

The research into motivating farmers to retrofit older tractors with rollover protective structures (ROPS) helps explain how barriers and motivating factors are *not* two sides of the same coin. For example, Sorensen and colleagues,⁸ building upon the work of Hallman,⁹ found that because you address major barriers to ROPS retrofitting such as financial

TABLE 1. The Eight Essential Social Marketing Components⁵

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1. A consumer orientation to realize organizational (social) goals
 2. An emphasis on the voluntary exchanges of goods and services between providers and consumers
 3. Research in audience analysis and segmentation strategies
 4. The use of formative research in product and message design and the pretesting of these materials
 5. An analysis of distribution (or communication) channels
 6. Use of the marketing mix—utilizing and blending product, price, place, and promotion characteristics in intervention planning and implementation
 7. A process tracking system with both integrative and control functions
 8. A management process that involves problem analysis, planning, implementation, and feedback functions
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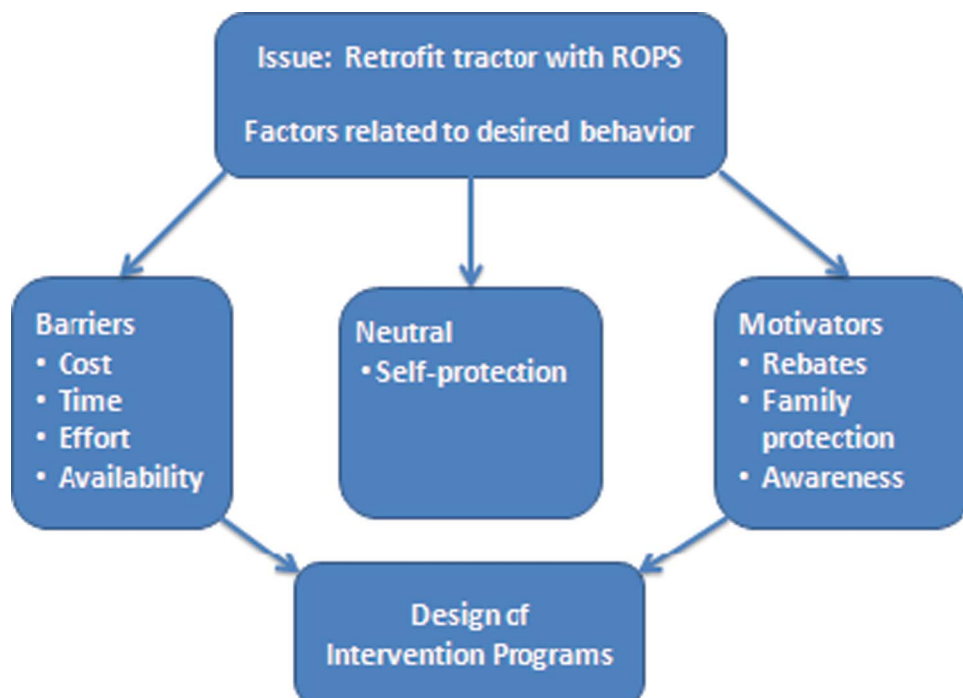
costs and time constraints, you don't necessarily achieve the best intervention results. In Sorensen et al.'s⁸ research, they found the greatest change in farmers' intentions to install ROPS came from farmers exposed to a rebate (addressed barrier to behavioral change) *and* a targeted promotional campaign (addressed motivating factors for behavioral change), compared with farmers who received generic promotional pieces and a rebate incentive (barrier to behavioral change), farmers who received only targeted promotional campaign (addressed motivational factors), or a control group (no rebates or promotional campaign). Targeted promotional campaigns are developed by formative research with a target population, researching the motivators and barriers of the population, and tailoring the promotional pieces to the motivators and barriers of that population. Generic promotional pieces are developed to simply provide information with little input from the populations they are intended to reach.

Smithson et al.⁶ divided barriers and motivators, or facilitators, even further by grouping them into three main themes: External,

Physical or Environmental, and Individual. The External theme refers to legal, policy, or organizational issues that include information available to or communications with households, in addition to socioeconomic status. The Physical or Environmental theme refers to (a) housing; (b) available equipment and its maintenance; (c) training; and (d) costs associated with the barriers and motivators. The Individual theme refers to the understanding of risk, the cultural background, and the social relationships of the individual. These themes can be used to further classify barriers and motivators, which is useful in intervention development.

There are many ways to group or divide factors that are potential barriers or motivators, but not all factors fall into a barrier or motivator grouping. Some factors that may seem to be important to a researcher are not identified by the target population as a barrier or motivator. See Figure 1 for a visual example of this point using retrofitting tractors with a ROPS as the issue. Using research methods, factors that inhibit the adoption of the desired behavior (Barrier), factors that play no

FIGURE 1. Identifying barriers, motivators, and nonfactors for retrofitting tractors with ROPS (figure available in color online).



role (Neutral), and factors that provide motivation for moving forward (Motivator) with the recommended safety practice can be identified. For example, in the case of ROPS retrofitting, adult tractor operators did not identify self-protection as a barrier or a motivator.⁸ All this information, then, can be used to develop intervention strategies and programs that facilitate adoption of the recommended practice.

DISCOVERING DIFFERENCES BETWEEN BARRIERS AND MOTIVATING FACTORS

The Transtheoretical Model of Health Behavior Change (TTM)¹⁰ is one of several behavior change theories that carefully consider the combination of barriers and motivators to effect behavioral change. The TTM assesses an individual's readiness to engage in healthier behaviors and provides strategies or processes of change to move the individual through the stages of change to action and maintenance. It is often referred to as the "Stages of Change" model. In the TTM, change is a "process involving progress through a series of stages."¹⁰ Table 2 shows Prochaska and Velicer's¹⁰ Stages of Change and how these stages might apply to

parents carrying their children as extra riders on tractors.

Studies across several types of desired behaviors (e.g., smoking cessation, weight control, more exercise, sunscreen use, radon testing) using the Stages of Change model have found systematic relationships between stages of change and pros and cons of changing behavior.¹¹ For example, the cons (barriers) of changing were higher than the pros (motivators) for people in the precontemplation stage, whereas the pros (motivators) were higher for people between the precontemplation and contemplation stages. Furthermore, from contemplation to action stages, the cons of changing were lower in the action stage than in the contemplation stage, and in most cases, the pros of changing were higher than the cons for people in the action stage. These relationships suggest that to progress from precontemplation, the pros of changing must increase; to progress from contemplation, the cons must be decreased; and to progress to action, the pros must be higher than the cons.

A practical implication of these findings is that it may require researchers and educators to spend more time identifying and addressing the benefits and motivators for changing specified behaviors than on removing identified barriers to the desired behavior change.

TABLE 2. The Stages of Change Identified by Prochaska and Velicer¹⁰

Stage	Definition	Example*
Precontemplation	People are not intending to take action in the foreseeable future, and are most likely unaware that their behavior is problematic.	Parents are unaware of how serious the consequences are of having a child as an extra rider on a tractor.
Contemplation	People are beginning to recognize that their behavior is problematic, and start looking at the pros and cons of their continued actions.	Parents realize that having a child as an extra rider is hazardous but don't change the practice.
Preparation	People are intending to take action in the immediate future, and may begin taking small steps towards change.	Parents of children who are extra riders are thinking about stopping the practice; may decline the practice a time or two.
Action	People have made specific overt modifications in their life style, and positive change has occurred.	Parents have discontinued allowing children as extra riders and have set up safer alternatives.
Maintenance	People are working to prevent relapse: a stage that can last indefinitely.	Parents have developed and are sticking to self-mandated rules relating to no extra riders.
Termination	Individuals have zero temptation and 100% self-efficacy: they are sure they will not return to their old unhealthy habit as a way of coping.	Parents do not allow children as extra riders under any circumstance.

*Examples added by authors.

STUDYING BARRIERS AND MOTIVATORS IN AGRICULTURAL SAFETY AND HEALTH

A review of literature identifies numerous research and intervention studies that directly reference social marketing in agricultural safety and health,¹²⁻¹⁵ numerous studies that identify reasons why parents allow their children to be exposed to hazardous situations on the farm,^{16,17} and reasons why youth engage in risky behaviors.^{18,19} The reasons for unsafe behavior that these studies identify can reasonably be seen as barriers to changing behaviors, but only two studies were found that show evidence of systematically researching specific behavioral change motivating factors. These are the Sorensen et al.⁸ study on ROPS retrofits for tractors mentioned earlier and the Luque et al.¹³ study on eye injury prevention for citrus workers. These two research studies support the need for interventions to address both *barriers to* behavior change and *motivating factors for* behavior change. They also support the idea that it is important to understand where the target population is within behavioral change models.

APPLICATIONS TO AGRICULTURAL SAFETY AND HEALTH FOR YOUTH

The application of social marketing techniques to agricultural safety and health for youth should not be difficult to grasp. Social marketing is often referred to as a field of study that addresses public health issues that rely on voluntary behavior change to effect behavior to improved safety and health.² There is evidence from public health fields that research can identify parental motivators and barriers for adoption of safety strategies for children.^{20,21} This same methodology has the potential to identify motivators and barriers for parent's adoption of agricultural safety and health best practices in areas such as supervision of children on farms, the use of North American Guidelines for Children's Agricultural Task (NAGCAT) Guidelines for developing best practices work guidelines, and sending youth to structured safety training. For example, in spite of many

efforts to dissuade parents from attempting to watch or supervise their child and conduct farm work at the same time, the practice continues.²² Affordable rural childcare has been identified as a barrier,²³ but if this barrier were alleviated, would that be enough to motivate farm parents to change such a strongly embedded cultural practice? The NAGCAT provides guidance for safely assigning work tasks to children that match their developmental characteristics. But what does it take to motivate parents to actually use the guidelines? What types of motivators need to be in place to convince parents to send or enroll their children in safe tractor driving programs? Social marketing techniques have been shown to work with vulnerable populations, such as Hispanics.¹³ Can these techniques be expanded to other vulnerable or special populations? These questions cannot be answered without research and intervention studies that specifically explore not only *barriers to* best safety and health practices, but also *motivators for* best safety and health practices.

SHORTCOMINGS AND RECOMMENDATIONS

Kolter and Zaltman²⁴ have summarized the two main limitations of social marketing theory by stating that, "A marketing planning approach does not guarantee that the social objectives will be achieved, or that the costs will be acceptable." In other words, executing a comprehensive social marketing plan is a complex process that requires a great deal of resources, and the desired results may not be achieved.

Even with these limitations, we suggest that social marketing techniques have been proven to be a useful tool in changing a target population's behaviors for improved safety and health. We further believe that few agricultural safety and health professionals have been adequately exposed to, or more importantly, understand how to use social marketing concepts and techniques in their research or intervention studies. This is evident from the lack of published literature by agricultural safety and health professionals that include social marketing techniques in their research methods. We offer several

suggestions to help address issues relating to social marketing and agricultural safety and health.

For research: Agricultural safety and health researchers should incorporate social marketing strategies, theories, and models based on motivators and barriers into their research and outreach programs. This would include the use of formative stages of intervention development in their research. This may best be accomplished by public health professionals and agricultural safety and health professionals from outside of public health working together. This model has worked well for the ROPS retrofit program directed by Sorenson et al.⁶

For organizational policy: Agricultural safety and health funding agencies should include the use of social marketing techniques, theories, and models in their requests for applications for both research and outreach activities.

For interventions: Agricultural safety and health interventions should include social marketing approaches to encourage best safety and health practices in agriculture. Social marketing approaches could be very useful in issues relating to children's exposure to agricultural worksite hazards, senior farmers continuing to work well past normal retirement age, and farm and ranch operators instituting comprehensive safety and health management plans for their farms and ranches.

For knowledge mobilization: Agricultural safety and health organizations should be encouraged to include social marketing techniques, including how to identify motivators and barriers, in their professional development programs. For example, the International Society for Agricultural Safety and Health (ISASH; formerly NIFS) is an organization dedicated to the professional development of agricultural safety and health professionals (<http://isash.org/>). A dedicated session on social marketing techniques at their

annual conference is an ideal professional development opportunity.

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