The Lifestyle Risk Reduction Model (LRR): Understanding the Theoretical Framework that Guides Our Work

Introduction

The Lifestyle Risk Reduction (LRR) model seeks to reduce problems associated with lifestyle choices. While the model evolved to provide an understanding of addiction within the larger context of lifestyle-related health problems, it may also contribute to a clearer understanding of other lifestyle-related health problems such as type-2 diabetes and most forms of heart disease and cancer. The LRR model covers the entire lifespan and incorporates the full continuum of care for prevention, intervention, and recovery. Initially developed in the late 1970s/early 1980s by Ray Daugherty in collaboration with Merita Thompson, Ed.D. and Terry O'Bryan, the model continues to be updated and refined regularly. The LRR model is the basis for various programs that have been delivered to over 4 million people worldwide.

What makes the LRR model different from other models?

In developing this model, we sought to answer three questions:

1. "What are we trying to prevent?"
2. "Who is our target audience?"
3. "How are we going to prevent it?"

Since the 1980s, most prevention models for alcohol and drug problems have focused on universal or selective prevention strategies designed to prevent alcohol and drug *use* among *youth*. This is primarily done by focusing on psycho-social risk factors[1] related to use and problems among youth. Biological factors are usually given only minor attention, if at all. So, while models may refer to alcohol and drug problems as bio-psycho-social in their etiology, the role played by each is not always articulated and the role of biology is often unaddressed, making the models more psycho-social in nature. The behavioral goals of the models and resulting programs generally target increasing abstinence and delaying onset of use.

By contrast, the LRR Model targets people of any age where use is likely to occur—from early adolescence through adulthood. It focuses on all three types of prevention as identified by the National Academy of Sciences: universal, selective, and indicated.[2] A unique perspective of the LRR model is approaching alcohol- and drug-related health and impairment problems as *lifestyle-related problems,* which share *developmental principles* with health problems such as type-2 diabetes and many forms of heart disease and cancer.

[1] Psycho-social factors refer to psychological factors such as personality, depression, anxiety, attitudes, beliefs, and/or values and social factors such as societal norms, peer influences, availability of substances, and/or policy and law.

[2] Universal prevention refers to prevention delivered to everyone in a target audience regardless of whether they use substances or have experienced problems. Selective prevention is used with at-risk populations before they have experienced problems. Indicated prevention is delivered to individuals who use substances, have experienced problems, and who may or may not need treatment.

This perspective leads to some important distinctions between the LRR Model and other interdisciplinary models. First, the LRR Model describes the role played by biological, psychological and social factors in a way that differs from other models. Other models propose that addiction and related problems are outcomes of social and psychological (risk) factors. In contrast, the LRR model asserts that high-risk alcohol and drug use itself interacts with biological risk factors and leads to substance use-related health and impairment problems. These problems include, but are not limited to, addiction. Psychological and social factors become risk factors *primarily by influencing* high-risk choices. In this model, high-risk use of alcohol and drugs becomes not only *a* risk factor for the development of problems, but *the most salient* risk factor. The emphasis on ***choice*** as the ultimate risk and protective factor is a fundamental feature of the LRR model. More specifically, biology is a risk factor that cannot be controlled, choices are the risk factor one can control, and psycho-social factors influence the choices one makes.

Current psycho-social risk models offer important contributions to understanding factors that influence individual high-risk alcohol or drug choices and provide an excellent structure for addressing risk reduction at the community, state, or national level. However, they provide little real guidance for how *individuals* can reduce their own risk for problems. These models suggest that risk factors are largely outside the individual's control. Beyond that, even if these models were applied perfectly, it does not rule out that an individual may still make high-risk choices out of ignorance, search for pleasure, or other factors not accounted for by the model. In short, these models do not seem well suited for empowering individuals to manage their personal risk for alcohol and drug problems. The LRR Model, by contrast, says to the individual, *"There are risks you cannot control and risks you can control. Even if you have increased risk due to genetic, psychological, or social factors, you can reduce your risk and protect what is important to you by making low-risk choices."* The model specifically defines what constitutes low- and high-risk choices. In doing so, individuals are empowered to make low-risk choices and protect what they value most, regardless of what risk factors might be present in their lives. Finally, the model puts alcohol and drug problems in a context they already understand—heart disease, cancer and type-2 diabetes—and avoids the stereotypes and stigmas that so often accompany use- and addiction-related problems.

It is important to distinguish Lifestyle Risk Reduction from Harm Reduction. Harm Reduction seeks to reduce the harm associated with use, primarily among adult and young adult heavy and addicted users, without necessarily changing use (e.g., needle exchange programs, designated driver programs, etc.). Although the LRR model shares the goal of reducing problem outcomes, it does so specifically by reducing high-risk use.

The LRR model defines high-risk use as a quantity and/or frequency of use that exceeds what research demonstrates is statistically associated with increased risk for negative outcomes. By focusing on prevention of, and transition away from, high-risk use the LRR model can be applied to both youth and adults through universal, selective, and indicated prevention. This further distinguishes it from other models in that it specifically addresses indicated prevention as an important prevention strategy, and as an essential part of addressing the full lifespan.

In summary, the LRR is distinct from other prevention models in: 1) addressing alcohol and drug problems as lifestyle-related problems, 2) focusing on biology and choices, 3) quantifying low and high-risk use, 4) conceptualizing psycho-social factors as influencing rather than as directly causing problems, and 5) addressing the whole lifespan.

What are the key principles of the LRR model?

We posit lifestyle-related health problems can be understood in terms of *six fundamental principles*:

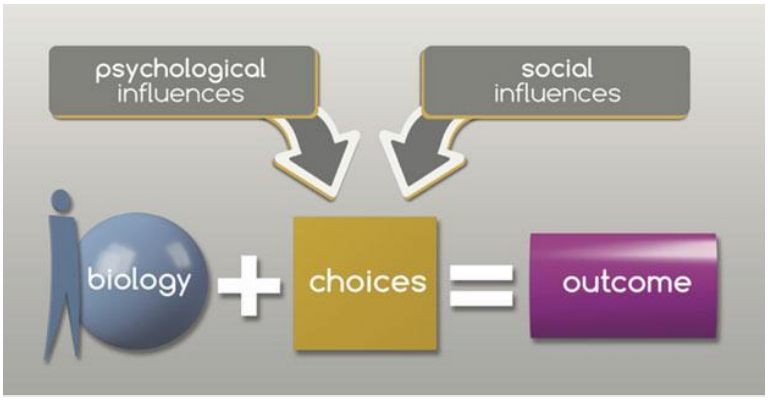
1. Each person has an inborn level of biological risk (or vulnerability) for developing each lifestyle-related health problem, including alcohol and substance abuse problems. While everyone has some level of biological risk, different people have different levels of risk. For example, while anyone could develop heart disease, people with a family history have an increased biological risk. Similarly, while children of parents both with and without addiction can develop addiction, evidence indicates children of parents with addiction have up to four-times increased risk, even if raised separately from the biological parent.
2. Lifestyle choices also create risk. Research has linked specific quantity (how much) and frequency (how often) choices to lifestyle-related health problems. Just as how much and how often we exercise and eat unhealthy foods influences our risk for heart disease, how much and how often we drink or use drugs influences our risk for addiction, cirrhosis, and other alcohol- or drug- related problems.
3. Our level of biological risk determines the point at which a behavior becomes high-risk. Individuals with a high biological risk (i.e., low trigger point) for heart disease often develop the disease while consuming relatively less fat in their diet compared to others. Similarly, people who have increased biological risk for addiction to alcohol and/or drugs often develop addiction while consuming lower quantities with less frequency in comparison to others.
4. Lifestyle-related health problems occur when the level of high-risk choices, for that behavior, equals or surpasses the level of biological risk (i.e., the trigger point). Once the trigger point is reached, problems are likely to occur.
5. Social and psychological factors play an important role in the development of lifestyle-related problems by influencing the quantity/frequency of high-risk and low-risk choices. They do not cause the problem directly.
6. The onset of lifestyle-related health problems is usually gradual and may exist on a continuum which typically includes a (mostly symptom-free) high-risk behavior phase, a prodromal phase, and a full onset phase. For example, in type-2 diabetes there is a period of high carbohydrate and sugar intake, followed by a period of pre-diabetes, followed by full onset of type-2 diabetes.

Taken together, then, the LRR model asserts that a combination of biology, psychology, social factors, and personal choices cause lifestyle problems. However, a cornerstone contention of the model is that personal choice alone can change one's risk for substance-related problems independent of the other factors. That is, people can choose to stop making high-risk choices or substitute lower-risk choices, which in turn can prevent addiction and other adverse outcomes. Prevention of problems is, however, most likely when individuals first recognize the continuum of risk and then ascertain their own personal level of risk. Each person has a unique brain chemistry which determines a biological threshold of risk for developing problems. Ultimately, it is their choices that determines how much or how little high-risk behavior they engage in. It is those choices that move the person closer to, or further from, addiction and other lifestyle-related problems.

Prevention, in the LRR model, is based on developing a lifestyle based on low-risk choices. Just as people cannot choose their level of biological risk, they often lack control over social factors such as education and income. Yet, they can control their choices. The goals are to help individuals identify their level of personal risk, know what is low-risk, and develop motivation to adopt low-risk behaviors.

The Lifestyle Risk Reduction Formula

The following formula is a visual representation of the six principles in the model:



Biological factors along with quantity and frequency of choices are the most direct contributors to risk. They interact with one another so that, depending on the choices made, lifestyle problems either occur or do not occur. The quantity/frequency of choices needed to trigger problems depends on the person's level of biological risk. As the formula depicts, psychological and social factors are powerful influences on quantity/frequency choices. It is important to remember that psychological and social factors influence choices, which interact with biological factors to determine whether a problem will occur. They do not directly cause lifestyle-related problems.

What conditions does the LRR model suggest would promote effective prevention?

The LRR model identifies five specific conditions which prevention programs can create to foster successful lifestyle behavior changes:

Condition One: An individual comes to believe: "It (lifestyle-related problem) could happen to me, and it is my quantity/frequency choices that will determine whether I experience a problem or not."

- Prevention efforts are more likely to be effective when an individual comes to believe that ***anyone***—not just certain kinds of people—can develop problems, and that his/her high-risk choices contribute to those problems. An individual will not care how much or how often they engage in risky behaviors if they do not feel personal vulnerability—that it is possible for problems to happen to him/her.

Condition Two: An individual learns how to estimate his/her level of biological risk and understands what specific quantity/frequency choices constitute high-risk and low-risk choices.

- In this condition, an individual comes to understand that high-risk choices are statistically linked to the lifestyle-related problems we are trying to prevent while low-risk choices are not. In short, a person can declare, "I know what to do to prevent lifestyle-related problems."

Condition Three: An individual gains awareness of social factors (e.g., relationships) that support low-risk choices.

- In this condition, an individual can distinguish between social influences that promote low-risk versus high-risk choices.

Condition Four: An individual gains awareness of, and works to develop, internal factors (i.e., psychological factors such as attitudes and values) that support low-risk choices.

- In this condition, an individual identifies the attitudes, values, and behaviors that support making low-risk choices."

Condition Five: People learn the inter- and intrapersonal skills needed to make and maintain low-risk choices.

- In this condition, an individual can announce, "I know how, and am confident in my ability, to make low-risk choices."

The LRR model proposes these are the five conditions under which change is most likely to occur. Which condition the prevention professional or program developer seeks to establish first, along with the activities which they use to do that, may vary according to several factors such as the community context or client population.[3] Depending on the setting, some of these conditions might already be established. Regardless, risk reduction is most likely to occur when all five conditions are met.

Conclusion

The key takeaway is that anyone who consistently makes high-risk choices can experience lifestyle-related problems. However, by helping people recognize their personal risk and equipping them with the skills to make low-risk choices, problems can be reduced or eliminated. This is the basis for the Prime For Life (PFL) suite of programs developed by Prevention Research Institute (PRI).

Drawing primarily on the LRR model and incorporating aspects of the Transtheoretical Model, Motivational Interviewing, the Social-Cognitive Model, and Positive Psychology, Prime programs seek to change participants' risk perceptions and attitudes toward substance use and high-risk choices. Participants are guided in assessing their level of risk along the continuum toward addiction and are aided in developing a plan to engage in behaviors to mitigate this risk. The PFL suite of programs can be used with a variety of target audiences including DUI populations, military personnel, and adolescents. Even more detailed information about the LRR model and the Prime programs can be found on our website: www.primeforlife.org.

[3] While there might be a sequential element to these conditions, depending on the context, participants might not move through them sequentially. See Daugherty, Dykstra, & Banks, 2021, for additional clarification.