

Influencing Adolescent Leisure Motivation: Intervention Effects of HealthWise South Africa

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Abstract

This study investigates changes in self-reported motivation for leisure due to participation in HealthWise, a high school curriculum aimed at decreasing risk behavior and promoting health behavior. Participants were 2,193 mixed race adolescents ($M = 14$ years old) from 9 schools (4 intervention, 5 control) near Cape Town, South Africa. Students in the HealthWise school with the greatest involvement in teacher training and implementation fidelity reported increased intrinsic and identified motivation and decreased introjected motivation and amotivation compared to students in control schools. These results point to the potential for intervention programming to influence leisure motivation among adolescents in South Africa and represent a first step toward identifying leisure motivation as a mediator of program effects.

KEYWORDS: Adolescents, intervention, leisure motivation, self-determination theory

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Introduction

Globally, all youth have hours in the day that can be considered discretionary or free (Irby & Tolman, 2002). What youth do and do not do during this time is a topic of investigation among researchers from a variety of backgrounds who are interested in promoting healthy youth development and preventing risk behavior (e.g., Verma & Larson, 2003). In a report from the Forum for Youth Investment to the United Nations that examined leisure time cross-culturally, Irby and Tolman observed that sports, recreation, and cultural programs are seen as promising types of interventions to prevent or reduce delinquency, conflict, drug abuse, and sexual risk behavior. On the other hand, they questioned the effectiveness of some of those interventions due to the rather uninformed approach often taken with regard to the provision of services and stated:

Too often, however, these forays into 'discretionary' space are taken without an appreciation of what that space is and does for people. The ease with which policy makers and large system planners confiscate time, redefine activities and supplant or take advantage of community programs...suggests a basic lack of understanding, if not a lack of respect for what goes on when young people are not in school, not at work. (p. 1)

In this paper, we address one element of what goes on in that "space" called leisure or free time¹: motivation.

There are three main reasons to examine motivation with regard to why youth do what they do (or do not do) during their leisure or free time. First, motivation not only drives behavior but also is associated with various outcomes. Certain types of motivation, such as intrinsic and identified motivation, theoretically lead to the enhancement of behavioral effectiveness, sense of belonging, and subjective well-being (Ryan & Deci, 2000). At the same time, Ryan and Deci suggested that more extrinsic types of motivation, as well as lack of motivation (i.e., amotivation), are linked with less optimal health and well-being.

The second reason for focusing on motivation is that it has been linked inextricably with the definition of leisure; self-determined and intrinsically motivated behavior is a hallmark of leisure (e.g., Iso-Ahola, 1979; Mannell & Kleiber, 1997). The causes and effects of leisure motivation among adolescents, however, is a topic still in its infancy (Caldwell, Baldwin, Walls, & Smith, 2004).

The third reason is that understanding motivation in or for leisure is linked to risk and health outcomes. For example, leisure-related extrinsic motivation, amotivation, and boredom scores were related to higher odds of being a consistent smoker and or to initiating smoking (Palen et al., submitted). Similarly, youth who had never smoked or drank alcohol were more likely to belong to a latent class characterized by intrinsic leisure motivation; conversely, those who had ever smoked or drank were more likely to belong to a class characterized by extrinsic leisure motivation and amotivation (Caldwell, Bradley, & Coffman, 2009). Leisure boredom, also a risk factor for risk behavior (e.g., National Center on Addiction

¹ A discussion regarding free time and leisure is beyond the scope of this paper. We will refer to the phenomenon as leisure.

and Substance Abuse, 2003), is also influenced by leisure motivation (Caldwell, Darling, Payne, & Dowdy, 1999).

The link between motivation and health outcomes, however, begs the question of whether or not interventions are able to change adolescents' typical motivational style. Thus, the purpose of this paper was to investigate the five types of motivation articulated in self-determination theory (SDT) and address the question, "Can adolescent leisure motivation be influenced?" That is, can an intervention program cause increases in positive forms of motivation and decreases in negative forms of motivation among adolescents in the leisure context?

Self-determination Theory

There are a number of theoretical perspectives that address motivation. Of particular relevance to the leisure context is SDT, which provides a differentiated approach to conceptualizing motivation. According to SDT, motivation exists along a continuum that represents variation in the degree to which one acts for internal or external reasons or rewards (Ryan & Deci, 2000).

The SDT continuum includes intrinsic motivation, four types of extrinsic motivation and amotivation. Intrinsic motivation is the manifestation of the natural tendency humans have to seek learning and exploration, to act autonomously, to engage with others, and to experience competence (Ryan & Deci, 2000). In other words, individuals who are intrinsically self-regulated participate in activities for the inherent enjoyment and satisfaction derived from the behaviors. In general, individuals who report higher levels of intrinsic motivation also report higher levels of health and well-being (Ryan & Deci).

The four types of extrinsic motivation vary in the amount of "intrinsicness" associated with the behavior. The least intrinsically motivated type is labeled external motivation, wherein individuals simply aim to satisfy external demands. Introjected motivation involves participation in activities because some aspect of self-esteem or social reward is contingent upon it (e.g., to avoid anxiety, to produce pride, or to please others; Deci & Ryan, 1985; Ryan & Deci, 2000). Identified motivation is somewhat internally regulated such that behaviors are personally important and help to achieve personally meaningful goals. The final type of extrinsic motivation, called integrated regulation, represents a stage where regulation of behaviors has been fully integrated with an individual's values and needs. However, Vallerand (1997) suggests that adolescents may not be developmentally able to experience this type of motivation; therefore it is not assessed in the current study. Finally there is the condition of not being either internally or externally motivated. Thus, individuals who are amotivated lack any intention to act and simply "go through the motions" (Ryan & Deci, 2000, p. 72).

To help illustrate this continuum, consider the reasons a youth might go to the gym. If the reason is because a coach demanded it, he or she is extrinsically motivated. If it is because friends are going and he or she would feel guilty if he or she didn't go, the person is motivated for introjected reasons. A person who values physical health and is personally and internally committed to running a 5K race and wants to get in shape would act out of identified motivation. If the individual loved the kinetic feel of lifting weights and playing racquetball, had fun with

friends, and felt competent (without the need for a reward), he or she would be intrinsically motivated. Finally, if there was no apparent reason for going, and the individual did not feel as though any action that he or she did really mattered, but just went anyhow, he or she would be considered to be amotivated.

Leisure and Adolescent Motivation

Leisure is a major context for the experience of intrinsic motivation as it provides an opportunity for agency and self-determined behavior, exploration of interests, identity development, skill development, and pursuit of meaningful and personally expressive experiences over time (Caldwell, 2005; Larson, 2000). Although intrinsic motivation is usually privileged in the leisure literature as the hallmark of what leisure is, it is unrealistic to think that, even in leisure, all motivation is intrinsically regulated, especially among adolescents who are socially aware and are in the process of establishing their identities in large part in relation to others. In particular, identified motivation is an important, positive form of motivation among adolescents and one that is also strongly linked theoretically and empirically to both the leisure context and positive well-being (Coatsworth, Palen, Sharp, & Ferrer-Wreder, 2006; Hansen, Larson, & Dworkin, 2003; Larson, 2000). Youth who set goals and strive to accomplish them are typically actively engaged with "life" and display initiative.

Outcomes associated with introjected motivation in leisure or free time can be both positive and negative because, in adolescence, introjected motivation is often linked with peer influence or pressure (Caldwell & Baldwin, 2005). Peer influence can be positive in that peers may be supportive of each other in attempting new, socially desirable activities. It can be negative in the sense that peer pressure can lead a youth to engage in unhealthy or risky behaviors in which he or she might not otherwise participate.

Behavior that is either motivated by entirely extrinsic motivation or that is amotivated is theoretically linked with the most undesirable outcomes, although there is little in the leisure literature that provides empirical evidence of that conjecture. In the education and physical education literatures, there is a great deal of related research that suggests that extrinsic motivation and amotivation are linked to poor academic or developmental outcomes such as unhappiness, boredom, and dropping out of a program or activity (e.g., Baker, 2004; Ryan & Deci, 2000; Standage, Duda, & Ntoumanis, 2005; Walker, Greene, & Mansell, 2006).

Influencing Motivation through the HealthWise Intervention

Because leisure motivation is associated with well-being as well as risk behavior, it may provide an important target for interventions aimed at decreasing risk and increasing positive behavior. The study described here reports on such an intervention, HealthWise South Africa (Caldwell, Smith, et al., 2004), that took place in a peri-urban area near Cape Town, South Africa.

The Need for HealthWise. A major public health concern in South Africa is risk behavior among adolescents (Reddy, Resnicow, Omardien, & Kambaran, 2007), who make up 21% of the South African population. According to the 2002 South African Youth Risk Behavior Survey, one in eight high school students be-

gins drinking alcohol before the age of 13 years, and nearly one-quarter of students in grades 8 through 11 have engaged in binge drinking in the previous month (Reddy et al., 2003). About 13% of students in these grades have tried marijuana, with the majority of those having also used it in the past month. Approximately 30% of 8th through 11th graders have smoked cigarettes in their lifetime, with 21% of youth having smoked in the past month and nearly 7% having smoked on 20 or more days in the past month. Finally, in South Africa, more than half of 11th grade students have engaged in sexual intercourse, nearly 1 in 10 sexually-active 11th grade students reports having had a sexually transmitted infection, and 13% report having either been pregnant or made someone else pregnant (Reddy et al., 2003).

There has been much less attention given to leisure time activity of South African youth, and particularly youth living in low-income areas. The literature that does address youths' leisure time suggests that young people are sedentary, with close to 40% not participating in physical activities (Department of Health & Medical Research Council, 2003) and many experiencing boredom (Møller, 1991; Wegner, Flisher, Muller, & Lombard, 2006).

The HealthWise Intervention. HealthWise South Africa is a youth risk prevention program that aims to reduce substance abuse, pregnancy, and the transmission of HIV/AIDS and other sexually transmitted infections through healthy use of leisure time. HealthWise is a comprehensive program that addresses multiple, coactional risk and protective factors by means of four intervention approaches: self-awareness; skill development; community integration; and knowledge, analysis, and synthesis. HealthWise consists of 12 lessons taught in 8th grade and six lessons in 9th grade. The intervention has a unique focus on leisure through the integration of TimeWise: Taking Charge of Leisure Time (Caldwell, 2004). TimeWise teaches youth to learn personally meaningful and healthy ways to use their free time, avoid boredom and develop interests, become aware of community resources, and learn to overcome constraints to participation in desired leisure activities (Caldwell, Baldwin, et al., 2004). These lessons were all culturally adapted for use in the HealthWise intervention (which the authors developed; see Wegner, Flisher, Caldwell, Vergnani, & Smith, 2007).

In this study, HealthWise was delivered in the classroom by teachers, with the support of two youth development specialists. It is part of Life Orientation, which has been introduced by South Africa's Department of Education as a compulsory, examinable learning area from 1st to 12th grade (Department of Education, South Africa, 2002; 2003). Life Orientation includes health promotion and wellness as core learning outcomes and accommodates the Department of Health's Life Skills and HIV/AIDS education program.

Self-determination Theory Applied in South Africa. There is evidence that SDT holds across cultures with similar positive and negative outcomes, although the specific mechanisms by which these outcomes are influenced and the strength of relations may vary (e.g., Chirkov, Ryan, Kim & Kaplan, 2003; Ryan & Deci, 2000; Walker, Deng, & Dieser, 2005). Thus, SDT provided one of the theoretical foundations for the intervention and is the theory we focus on in this paper (for more on the theoretical underpinnings of HealthWise, see Caldwell, Smith, et

al., 2004). Although SDT underlies much of what is taught in HealthWise (i.e., self-determination and motivation are addressed in some way in each lesson), *leisure* motivation is addressed primarily in lesson two in grade nine, which typically takes three 40-minute classroom periods to cover. In this lesson, students are introduced to reasons associated with amotivated, externally motivated, and internally motivated styles of leisure activity behavior. Students identify reasons they engage in activities and are taught that more benefits accrue if they do things in their leisure time that are in line with intrinsic or identified forms of motivation. In contrast, activities done because there is nothing else to do (amotivation), they have to (external motivation), or they need to fit in or be popular with their friends (introjected motivation) are also discussed.

Hypotheses and Research Questions

For this study, we sought to determine whether we could influence our sample of South African adolescents' type of motivation after exposure to the HealthWise curriculum. We hypothesized that students exposed to HealthWise would report an increase in the more intrinsic (e.g., intrinsic and identified) types of motivation and a decrease in extrinsic motivation and amotivation compared to control students. We made no hypothesis about introjected motivation because it can play both a positive and negative role in well-being and risk; we merely reported on whether or not it changed. Because we had previously found gender differences for intervention effects (Smith et al., 2008), we also tested for gender differences regarding motivations and change in motivation, although we made no predictions about direction of effects.

Method

Study Design

Data for the current study came from a trial to test the effectiveness of the HealthWise curriculum. Of the 25 high schools in the school district, six were excluded from consideration due to concerns about their ability to functionally participate. Of the remaining 19 schools, four were randomly selected and recruited to pilot and subsequently deliver the intervention; none refused to participate. Five additional schools were subjectively matched to the four treatment schools to serve as control schools, all of which agreed to participate. We collected data on three cohorts of students beginning in 2003 with multiple waves of data collected at approximately six month intervals. Student assessment began in grade eight of each cohort.

For this paper, we examined the first cohort across its first four waves of data collection. Questionnaires were administered with personal digit assistants (PDAs) at the beginning (wave 1) and end (wave 2) of 8th grade and the beginning (wave 3) and end (wave 4) of 9th grade. HealthWise was taught between waves 1 and 2 and between waves 3 and 4.

Participants

Participants were students who lived in a low-income, densely populated peri-urban setting area near Cape Town, South Africa (four intervention schools $n = 902$, 41.1% and five control schools $n = 1291$, 58.9%). The mean age of participants at baseline (wave 1) was 14.0 years ($SD = .86$), and 51% of students were female. Nearly all participants, 85.8%, identified themselves as mixed race (a combination race of Asian, European, and African descent) with an additional 9.5% of students identifying as Black and 4.0% as White. Language spoken at home was mixed: 52.7% spoke English, 45.6% spoke Afrikaans, and 5.1% spoke Xhosa. The program materials and evaluation surveys were available in both English and Afrikaans.

Implementation Differences across Intervention Schools

There was one additional and potentially important consideration for conducting these evaluative analyses. Process evaluation data and educator participation in intervention training suggested that there was one school, referred to as the High Implementation School (HIS), where the educators were more highly trained and implemented the intervention with a higher degree of fidelity (Caldwell, et al., 2008). For example, in this school 71.4% of teachers (10 out of 14) attended a HealthWise teacher training session in 2005. None of the teachers in any of the three remaining intervention schools attended training in 2005, although they did get individual guidance in implementing the intervention. We felt that we needed to take this unexpected phenomenon into account. Therefore, the HIS was compared to the control schools as a high fidelity implementation versus control comparison. Finally, the HIS was compared to the other treatment schools to identify possible differences in effects by quality of intervention implementation as indicated by teacher training.

Measures

The Free Time Motivation Scale for Adolescents (FTMS-A) was developed to reflect the SDT framework in a free time context among adolescents approximately aged 12 to 16 years (Baldwin & Caldwell, 2003). Five sub-scales were used in the current study and were modified slightly to be culturally appropriate (Yunker, Caldwell, Coffman & Smith, 2008). For each sub-scale listed, the number of items in the sub-scale, the alpha reliability coefficients for waves 1 through 4, and a sample item are provided:

- amotivation (three items, $\alpha = .72, .79, .80, .83$, e.g., “I don’t know why I do my free time activities, nothing much interests me”);
- external motivation (three items, $\alpha = .76, .75, .82, .81$; e.g., “I do what I do in my free time because my parents expect me to”);
- introjected motivation (three items, $\alpha = .67, .69, .73, .71$; e.g., “I do what I do in my free time because I want to impress my friends”);
- identified motivation (six items, $\alpha = .78, .79, .81, .79$; e.g., “I do what I do in my free time because it is important to me”); and
- internal motivation (two items, $\alpha = .58, .65, .64, .67$; e.g., “I do what I do in my free time because I want to have fun”).

Data Analysis

Univariate multilevel models using the SPSS MIXED command investigated the main effects of wave, gender, and intervention on motivation, as well as two- and three-way interactions. Multilevel models enable the modeling of trends over time within each intervention group. In other words, the nested nature of the data (occasions of measurement [i.e., wave or time] nested within people) is fully accounted for. Structuring the data analysis this way allows us to make inferences about change within people over time (i.e., like drawing a change curve for each person and then averaging across them to describe the population). This analytic strategy also allows the addition of predictors about what types of people (e.g., boys or girls) showed significantly different types of changes.

With repeated occasions for each person, the intercept and the slope of the line representing change over time in motivation are modeled. The intercept (i.e., value at wave 1) is predicted by main effects of gender and treatment (i.e., intervention group). The overall average change in motivation over time is predicted by the effect of wave. Potential differences in changes in motivation over time for boys and girls are predicted by gender \times wave effects. Hypotheses regarding differential changes over time for the intervention groups are tested by interaction terms of treatment \times wave that allow for the effect of time to vary by group. For example, our central hypothesis was that we anticipated that students in intervention schools would evidence more developmentally positive motivations over time (i.e., significant treatment \times wave effect).

The complete model was tested for the five motivation types as dependent variables: amotivation and intrinsic, identified, introjected, and external motivation. For each of these variables, all intervention participants were compared to all control participants, students in the HIS were compared to students in all control schools, and students in the HIS were compared to the other treatment schools.

Results

Quadratic effects, piecewise models, and random effects of time were tested but the fit of these models was not significantly different from that of a model with only fixed linear effects; therefore, the model using a fixed linear effect of time (i.e., wave) is reported. All 2-way and 3-way interaction effects were tested. Gender by treatment and the 3-way gender by treatment by wave interactions were non-significant in all models and therefore were removed. Those included in the final model were: (a) gender \times wave, which tested if male and female adolescents changed differently and (b) treatment \times wave, which tested whether motivation changes over time differed for treatment and control groups. Tables 1 through 3 report final model parameters for each of the five dependent motivation variables for three different comparisons: all treatment vs. all control schools, HIS vs. all control schools, and HIS vs. other treatment schools.

Intercepts. The intercept values reflect the mean motivation score for the reference group, i.e., girls in the control group (Tables 1 and 2) or non-HIS treatment schools (Table 3) at wave 1. The statistical significance of the intercept values reflects the fact that mean motivation was greater than zero for the reference

group. A non-significant value would indicate that students reported an average of no motivation (0 on a scale of 0 to 4).

Gender and Wave Effects. The effect of gender indicates whether boys differed from girls on motivation at wave 1. The non-significant gender by treatment interaction demonstrated that differences between boys and girls did not differ for students in the control and treatment groups. In each table, the coefficient values reported reflect the deviation from the mean for those not in the reference group. If the number is negative, boys had less motivation than girls at wave 1; if the number is positive, boys had greater motivation than girls at wave 1. Results indicated that, as compared to girls, boys reported significantly lower levels of intrinsic motivation and significantly higher levels of introjected motivation, extrinsic motivation, and amotivation at wave 1 for all comparisons.

The effect of wave in the model assesses whether, on average, the reported levels of motivation were increasing, decreasing, or remaining the same over time for the reference group. Negative values indicate that girls in control or non-HIS schools reported decreasing levels of motivation across time; positive values indicate that these girls reported increasing levels of motivation across time. Thus, overall, results suggest decreasing levels of identified motivation, introjected motivation, and extrinsic motivation over time. Intrinsic motivation and amotivation did not significantly change over time for the reference group. However, the effect of wave was qualified by two interaction effects (gender \times wave and treatment \times wave).

Male and female adolescents in the control or non-HIS group changed differently over time. This is indicated by the significant gender \times wave interaction for two motivation variables (see Tables 1 and 2). For both introjected motivation and extrinsic motivation, boys decreased less over time than did girls. There were no significant gender \times wave interactions when comparing the HIS to other treatment schools (Table 3).

Intervention Effects. The effect of treatment assesses whether students in the reference group differed from students in the intervention (or HIS) group prior to the intervention (i.e., at wave 1). Negative coefficient values indicate that treatment (or HIS) school girls reported less of that type of motivation at wave 1; positive values indicate that treatment school girls reported greater motivation at wave 1.

The main outcome of interest in these analyses, based on the hypotheses stated, is whether the motivation of adolescents in HealthWise treatment schools changed over time in response to the intervention in a way that was distinguishable from the pattern of motivation among adolescents in control schools. In each table, this is indicated by the treatment \times wave interaction term. The non-significance of gender \times wave \times treatment interactions (not tabled) indicates that the intervention effects over time for boys and girls were in the same direction and of approximately the same magnitude.

When comparing all treatment versus control schools (Table 1), the significant treatment \times wave interaction term indicates that extrinsic motivation decreased less among girls at HealthWise schools. When the HIS was compared to the control schools, stronger changes in motivation emerged (Table 2). Students

Table 1: Multi-level Models Comparing All Treatment Schools Versus All Control Schools Over Time

	Intrinsic Motivation	Identified Motivation	Introjected Motivation	Extrinsic Motivation	Amotivation
	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)
Differences at Wave 1					
Intercept	2.96 (.03)**	2.72 (.03)***	1.46 (.03)***	1.89 (.03)***	1.51 (.03)***
Male Gender	-0.10 (.04)**	0.00 (.03)	0.42 (.04)***	0.24 (.04)***	0.22 (.04)***
Treatment	-0.10 (.04)**	-0.05 (.03)	0.12 (.04)**	0.04 (.04)	0.12 (.04)**
Changes Across Waves					
Wave	0.01 (.01)	-0.05 (.01)***	-0.07 (.01)***	-0.20 (.02)***	0.00 (.01)
Gender × Wave	-0.01 (.02)	0.01 (.01)	0.05 (.02)**	0.06 (.02)***	-0.01 (.02)
Treatment × Wave	0.02 (.02)	0.02 (.01)	-0.02 (.02)	0.04 (.02)*	-0.00 (.02)

* p < .05, ** p < .01, *** p < .001

Table 2: Multi-level Models Comparing High Implementation School Versus All Control Schools Across Time

	Intrinsic Motivation	Identified Motivation	Introjected Motivation	Extrinsic Motivation	Amotivation
	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)
Differences at Wave 1					
Intercept	2.94 (.03)***	2.72 (.03)***	1.47 (.03)***	1.91 (.04)***	1.51 (.04)***
Male Gender	-0.07 (.04)	0.01 (.04)	0.41 (.04)***	0.21 (.05)***	0.23 (.05)***
Treatment	-0.16 (.05)**	-0.02 (.05)	0.23 (.06)***	0.14 (.06)*	0.15 (.06)*
Changes Across Waves					
Wave	0.01 (.01)	-0.05 (.01)***	-0.08 (.01)***	-0.20 (.02)***	-0.00 (.02)
Gender × Wave	-0.02 (.02)	0.00 (.02)	0.07 (.02)***	0.08 (.02)***	0.00 (.02)
Treatment × Wave	0.06 (.02)*	0.05 (.02)*	-0.07 (.03)*	0.01 (.03)	-0.06 (.03)*

* p < .05, ** p < .01, *** p < .001

in the HIS showed increases in intrinsic motivation over time, stable identified motivation over time, decreases in amotivation over time, and greater decreases in introjected motivation over time as compared to students in non-HIS schools. Figures 1-3 represent plots of the observed means are provided to clarify the interaction terms. When comparing the HIS to other treatment schools, three differences emerged; students in the HIS reported significant increases in intrinsic motivation, decreases in amotivation, and significantly greater decreases in introjected motivation over time as compared to students in the non-HIS treatment schools (Table 3).

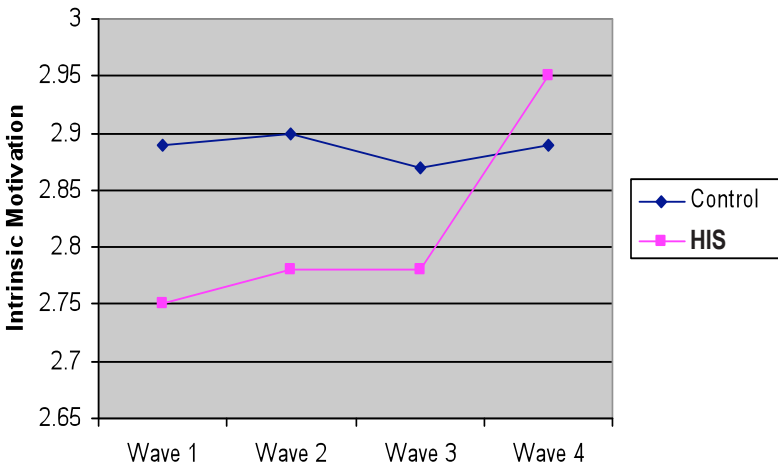


FIGURE 1. PREDICTED MEANS OF INTRINSIC MOTIVATION FOR HIS VS. CONTROL SCHOOLS

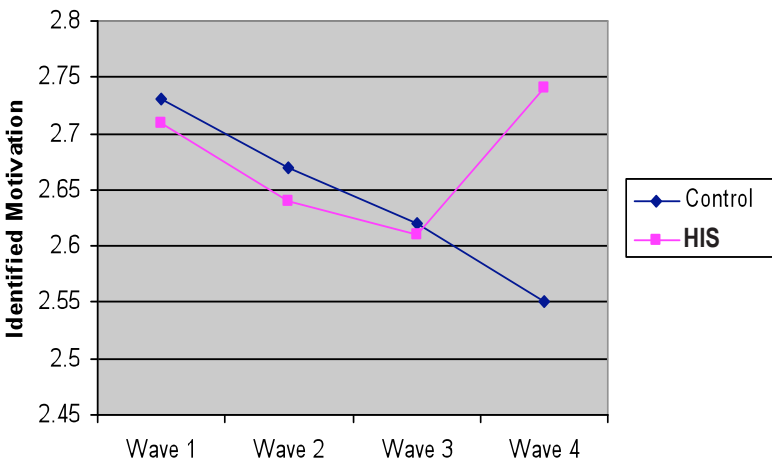


FIGURE 2. PREDICTED MEANS OF IDENTIFIED MOTIVATION FOR HIS VS. CONTROL SCHOOLS

Table 3: Multi-level Models Comparing High Implementation School Versus Other Treatment Schools Across Time

	Intrinsic Motivation	Identified Motivation	Introjected Motivation	Extrinsic Motivation	Amotivation
	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)	Estimate (SD)
Differences at Wave 1					
Intercept	2.90 (.04)***	2.66 (.04)***	1.51 (.05)***	1.86 (.05)***	1.62 (.05)***
Male Gender	-0.15 (.06)*	-0.01 (.05)	0.46 (.06)***	0.29 (.07)***	0.24 (.06)***
High Implementation	-0.08 (.06)	0.04 (.05)	0.16 (.06)*	0.15 (.07)*	0.04 (.07)
Changes Across Waves					
Wave	-0.00 (.02)	-0.04 (.02)*	-0.05 (.02)*	-0.13 (.02)***	0.03 (.02)
Gender × Wave	0.01 (.03)	0.02 (.02)	0.01 (.03)	0.04 (.03)	-0.01 (.03)
HIS × Wave	0.06 (.03)*	0.04 (.03)	-0.07 (.03)*	-0.05 (.03)	-0.08 (.03)*

* p < .05, *** p < .001

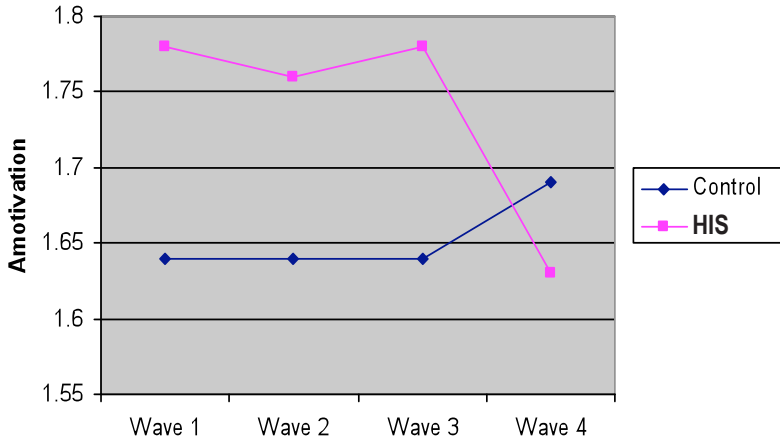


FIGURE 3. PREDICTED MEANS OF AMOTIVATION FOR HIS VS. CONTROL SCHOOLS

Discussion

The current study represents a first look at the effects of the HealthWise intervention on one of the hypothesized leisure mediators, motivation, thought to influence the distal outcomes of interest (initiation of substance use and risky sexual behavior). Because other research suggests that these effects will not be detectable until students reach the ages at which such transitions are normative, we focused here on the effects of the HealthWise program on the proposed mediating construct of motivation.

Students in the intervention school where teachers participated in training and had better program fidelity (i.e., HIS) evidenced increases in intrinsic motivation and stable identified motivation over time, as well as decreases in introjected motivation and amotivation, as compared to the adolescents in control schools. Furthermore, compared to the other intervention schools, adolescents in the HIS showed greater increases in intrinsic motivation and decreases in introjected motivation and amotivation. These results suggested that the HealthWise program had a positive effect on adolescent motivation, especially when implemented with greater fidelity, thus providing initial support for a school-based intervention geared to influence leisure motivation of adolescents.

Implementation fidelity (i.e., implementation of the program as intended by the developers) is rarely discussed in the leisure literature, although it is a critical issue to understanding whether and how intended outcomes are met when small-scale, well controlled programs are taken to scale and delivered in real world conditions. Our study was meant to be a small-scale, well controlled program, although in reality it was less controlled than desired as evidenced by the HIS. It should be noted, however, that we used a very crude, proxy measure of implementation fidelity (school with high training). Future efforts should employ more sophisticated measures. Implementation fidelity of interventions that go to scale

is a relatively new area of inquiry (as opposed to implementation fidelity of carefully controlled interventions) that has produced some interesting conceptual and empirical work (e.g., Domitrovich et al., 2008; Durlak & DuPre, 2008, Dusenbury, Brannigan, Falco & Hansen, 2003; Fagan, Hanson, Hawkins, & Arthur, 2008; Mihalic, Irwin, Fagan, Ballard & Elliot, 2004; Ringwalt, et al., 2003).

There are a number of things to consider when studying adolescent motivation, and in particular with respect to an intervention that aims to influence motivation. Although a good place to start, understanding leisure motivation among adolescents is probably not as straightforward as looking at each type of motivation individually (e.g., Ryan & Deci, 2000). Adolescents may be motivated by multiple types of motivation (e.g., enjoyment, goal orientation, and parent expectations) simultaneously. Thus, although the present study provided evidence for the ability to influence individual types of motivations, future analyses could consider a person-centered approach, which would allow for an examination of motivational styles.

Another consideration is that although there is an abundance of theoretical and empirical evidence suggesting that more internalized forms of motivation lead to the healthiest outcomes, it begs the question of whether being motivated at all is better than not being motivated. That is, would being extrinsically motivated be better than being unmotivated? It is unclear whether higher levels of extrinsic and introjected motivation are a positive or negative outcome for an intervention program. When considering extrinsic motivation, theory would suggest that only when an adolescent internalizes the behavior would positive outcomes be realized. However, although currently little is known about the process of internalization, it is possible that extrinsically motivated activities may eventually become more intrinsically motivated (Mullan & Markland, 1997; Pearce & Larson, 2006). Likewise, little is known about the specific ways introjected motivation influences behavior, and under what circumstances this occurs. Peers and adults can “pressure” an adolescent in both positive and negative ways. We suspect there are mediating and moderating variables to consider in these motivational processes, but they are not yet well defined in the literature. Thus, these issues represent empirical questions for future work and would aid in fine-tuning interventions like HealthWise.

Finally, there are some contextual issues to consider in the study of motivation. In our study, extrinsic motivation is assessed by asking whether adolescents do things because of the expectations or standards of others, including parents. Since the intervention targets only adolescents, parent expectations are not hypothesized to change. Therefore, even if an adolescent does become more intrinsically motivated, he or she may still report the same level of external motivation. Since reported extrinsic motivation relies heavily on the pressure and behavior of others, it may be less affected by adolescent-focused intervention programs. In addition, the HealthWise program was implemented among primarily mixed race adolescents in a peri-urban area of South Africa. Prior work with leisure motivation has been conducted largely with rural, Caucasian adolescents (Caldwell, Baldwin, et al., 2004). Potential cultural differences in adaptive and normative types of motivation should be investigated further.

Additional Insights

In addition to providing some evidence that motivation can be influenced by an intervention, the present study also highlights developmental trends in motivation. The overall effects of time (measured by study wave) suggest that there may be typical trajectories of motivation. For example, identified motivation, introjected motivation, and extrinsic motivation decreased over time, irrespective of intervention group. Introjected motivation and extrinsic motivation decreased more among female adolescents than among male adolescents. Intrinsic motivation and amotivation did not change systematically over time.

These normative changes in motivation across time differ from those reported among North American youth, for whom the typical trajectory is to become *less* intrinsically motivated and *more* amotivated (e.g., Eccles & Midgley, 1990; Wigfield & Eccles, 2002; Sharp, Caldwell, Graham & Ridenour, 2006). As just described, the youth in this sample reported no changes in intrinsic motivation and amotivation over time, but rather reported less identified, introjected, and extrinsic motivation, particularly for females. We are hesitant at this point to speculate why there may be cross-national differences but do consider it a topic for further inquiry.

Limitations

Although these findings are promising, the results must be viewed with the understanding that the data are from the first HealthWise cohort. Qualitative evidence suggests that the first year of program implementation was somewhat disjointed and community opportunities for activity participation were largely unavailable. Therefore, the program developers believe that the impact of HealthWise may be more positive in the second and third cohorts, as a result of the addition of program coordinators to promote community activities and educate adolescents about the opportunities. In addition, later cohorts will benefit from the experience of schools in implementation and potentially the more complete adoption of the HealthWise program resulting from teachers' and principals' positive experiences with the curriculum during the first year.

Conclusions

To the authors' knowledge, this study is the first to measure long term effects of an intervention program on motivation for leisure time use among a sample of South African adolescents. The effects are promising, but future work will be needed to replicate these findings. As additional cohorts and waves of HealthWise data are available for such analyses, we will conduct similar analyses to investigate the impacts of the program by implementation fidelity and cohort. Finally, the model reported here is the first step to analyzing a full mediation model. The current study suggests that the program does affect adolescent leisure motivation in the school that had high training and implementation fidelity, but future work will need to address whether the impact of the HealthWise program on leisure time use and risk behavior (substance use and sexual risk behavior) is fully or partially mediated by leisure time motivation. The significant findings of this study suggest that further work is merited and may provide insights into the leisure motivation of adolescents in other geographic locations.

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