Parental Rule Socialization for Preventive Health and Adolescent Rule Compliance

This study examined family rules about nutrition, exercise, and sun protection in 164 parent–young adult children dyads. Both parents and their young adult children independently reported on health rules that they perceived throughout their child’s adolescent years and the extent to which the rules were articulated, violations sanctioned, and modeled. Neither child nor parent perceptions of rule-related communication during adolescence predicted current young adult behaviors for any of the 3 health domains. Perceived rule compliance during adolescence was predicted from rule articulation across health domains, whereas patterns for sanctioning and parental modeling varied by health domain. Parents reported higher rule articulation than was perceived by their children across health domains and selectively reported higher scores on both sanctioning and modeling.

Adolescence is a critical time for establishing healthy behaviors that affect current health and decrease the risk of adult onset chronic disease. A great deal of effort has gone into decreasing risky health behaviors, such as alcohol, tobacco, and drug use, as well as unsafe sexual behaviors. Less attention is, however, paid to increasing health-promoting behaviors. Three specific adolescent health behaviors that can have a significant impact on future health include nutrition, exercise, and sun protection. The purpose of the present study is to examine the perceptions of parents and their young adult children with respect to how parental social control through communication about family rules during the child’s adolescence in these three health domains predicts rule compliance by the child during adolescence and currently.

Good nutrition and exercise can alleviate the health risk of children being overweight, thus improving adolescent health (Rosenbloom, Joe, Young, & Winter, 1999) and decreasing the...
risk of adulthood obesity (Ferraro, Thorpe, & Wilkinson, 2003), which can lead to diabetes, high blood pressure, high cholesterol, asthma, and arthritis (Mokdad et al., 2003). Current statistics regarding adolescents’ nutrition and exercise behaviors demonstrate much room for improvement. According to the Centers for Disease Control and Prevention (CDC, 2006), just 20% of high school students eat five servings of fruits and vegetables, and only 16.2% drink three or more glasses of milk per day; 64% do not meet the recommended levels of physical activity.

Sun protection behaviors, particularly during adolescence, are critical to the prevention of skin cancer because 25%–50% of a person’s lifetime UV exposure happens during adolescence and childhood (Dadlani, 2008; Saraiya et al., 2004). Exposure to the sun is a major risk factor for developing skin cancer (CDC, 2008), and sunburns during adolescence and childhood are associated with the development of melanoma, the most deadly skin cancer, and basal cell carcinoma (Gallagher et al., 1995; Whiteman & Green, 1994). Routine sun protection on sunny days is, however, practiced by less than one third of U.S. youth (Cokkinides et al., 2001). In 2004, 69% of youth reported having one or more sunburns in the past summer (Cokkinides et al., 2006).

Nutrition, exercise, and sun protection are health-promoting behaviors that can have a positive impact on adolescents’ current and future health. Adolescence is also a period of time when children are moving away from their dependence on parents and establishing their own identities. As such, adolescents are vulnerable to developing poor health behaviors that put them at risk (King & Klawitter, 2007). Few studies have examined the potential of parental influence on adolescents’ health-promoting behaviors, although there is a substantial literature on parental influences on children’s nutrition (e.g., Clark, Goyder, Bissell, Blank, & Peters, 2007). Existing research on families with adolescents has explored general health preventive practices (Young et al., 2001) and specific practices such as good food/nutrition choices (Bourdeaudhuij & Oost, 1998) and sun protection (Young, Logan, Lovato, Moffat, & Shoveller, 2005). These studies demonstrate that primary influences on adolescent choices include both the observation of, and communication with, a parent and that parents have a growing influence on their children’s preventive health behaviors during the teenage years (Lau, Quadrel, & Hartman, 1990). This research has, however, ignored the details of parental communication. Using social control theory as our framework, the current study examines how parental communication about family rules relevant to nutrition, exercise, and sun protection relates to health-promoting behaviors during adolescence and young adulthood.

**Social Control Theory**

Social control theory is a theoretical framework that examines how significant others positively or negatively affect health-promoting behaviors in individuals (Lewis & Rook, 1999). Social control can be accomplished either indirectly or directly through social influence processes of informal persuasion or through social regulation (Lewis & Rook). Social control research has tended to emphasize relationships that are grounded in status equality, such as spouses, and thus focuses almost exclusively on informal influence through various persuasive strategies (e.g., Butterfield & Lewis, 2002). The parent-child relationship differs in that it is not grounded in status equality; thus, it may rely on regulation processes as well as social influence processes as mechanisms of social control. Our study examines one regulation process that has been overlooked in the social control research—family rules about health behaviors.

According to Shimanoff (1980), a rule is “a followable prescription that indicates what behavior is obligated, preferred, or prohibited in certain contexts” (p. 57). To date, studies about family health rules have focused mostly on risky health behaviors such as tobacco use, alcohol use, and unsafe sex practices rather than on preventive behaviors such as the three focused on in the current study: nutrition, exercise, and sun protection.

A rule is a complex phenomenon that is often oversimplified. This oversimplification is manifest in two ways. First, research studies often ask participants to respond to a list of previously defined rules (O’Donnell et al., 2005). A weakness of this method is that the actual rules that may be circulating in a family’s communication system are ignored. Second, the rule concept tends to be simplified as a general, unitary type of communication about which
respondents are asked to report frequencies or likelihood of using (Stephenson, Quick, Atkinson, & Tschida, 2005). In this study, we address these limitations of previous research by (a) asking participants to provide their own rules and (b) exploring the complex nature of rules by investigating three features of social control present in rule regulation: rule articulation, rule sanctioning, and parental modeling.

The first feature is the extent to which health rules are articulated—explicitly or implicitly communicated by parents to their children. This feature takes into account the direct-indirect continuum as discussed in the social control literature (Lewis & Rook, 1999). Explicit articulation is direct talk in which the rule is expressed and a justification is provided for the rule. By contrast, an implicit rule is one that is present but not put into words or justified. In general, clearly articulated rules may result in less misunderstanding of the content of the rule and its rationale than implicitly communicated rules.

The second feature is rule sanctioning—the presence of consequences should the rule be violated. This feature underscores a rule as a regulation device rather than as a mere persuasive tactic of social control. A rule that lacks sanctions is weak in force, perhaps increasing the likelihood of violation. Third, on the basis of other social control research with parental modeling (e.g., DeJong, van Lenthe, van der Horst, & Oenema, 2009), we defined parental modeling as the extent to which parents followed the same rules that their children were expected to follow. Lewis and colleagues (Lewis, Butterfield, Darbes, & Johnston-Brooks, 2004) argued that modeling is an interdependent, communally oriented process in which the target’s attitudes and behaviors are influenced but in a way that is not as blatantly power oriented as other kinds of social control. In contrast to rule sanctioning, parental modeling may function relationally as a more subtle form of social control.

The three research questions guiding this study, for each health domain (nutrition, exercise, and sun protection), are as follows:

1. RQ1: What are parent and child perceptions of the health rules communicated by parents to their adolescents?
2. RQ2: To what extent do parent and child perceptions of rule articulation, rule sanctioning, and parental modeling predict perceived rule compliance by the child during adolescence?

3. RQ3: To what extent do parent and child perceptions of rule articulation, rule sanctioning, and parental modeling during adolescence predict perceived current young adult health practices?

**METHOD**

**Participants**

In all 164 young adult-parent dyads independently responded to questionnaires. Participants in our sample had a mean age of 21 years, with a range of 19–26 years, which generally fits the definitions in the literature of "young adult" (Edelstein & Sharlin, 2008; Ling, Nellands, & Glantz, 2009). Using young adult respondents allowed us to obtain retrospective perceptions on health rules and rule socialization processes during their adolescence while capturing current young adult health practices. Young adults were students from a large Midwestern university, predominantly Caucasian (94%), female (81%), and in college for a mean of 3.5 years. Eighty-eight percent were raised in a two-parent household with birth or adoptive parents, 6% in a stepfamily with a mother and a stepfather, and 4% in a single-parent household with a mother. None of the students reported being married. Participating parents of the young adults were also primarily Caucasian (94%) and female (79%), with a mean age of 49.6. Most parents (85%) reported completing at least some college, with 38% completing a bachelor’s degree, and 20% completing graduate or professional school. The sample was fairly homogeneous with respect to family income; 64% reported a household income of more than $75,000.

**Data Collection Procedures**

Undergraduate students were recruited to complete a questionnaire and they were requested to ask one of their parents to complete a questionnaire. Although just one parent completed the survey, survey items were written such that the one parent was responding for the household parents. In most cases, this was a two-parent household with birth or adoptive parents. In cases where biological/adoptive parents were separated or divorced, students, chose
one household as their primary residence. For completing the study, students could earn extra credit. Students who chose not to participate in the project could earn extra credit in alternative ways. Twenty-two students did not return parent surveys; these were not included in the data analysis, and the students were given full extra credit. Thus, students were not penalized for the absence of parental data, thereby reducing the risk of falsified data. The project received approval from the university’s Institutional Review Board. Parents were given the survey by their children, and it was returned to the researchers in a sealed envelope either by the student or by mail. For anonymous identification, the survey numbers were the same on the child’s survey and the parent’s survey.

Measures

The survey had three sections. First, there was a section that solicited background information. The second section asked both parent and young adult participants to identify the health-related rules communicated by parents that applied to the children during their adolescence. A health-related rule was defined for participants as “a stated or unstated expectation about what persons should or should not do related to their health.” This section solicited rules separately for a variety of health domains, three of which are relevant to this study: nutrition, exercise, and sun protection. For example, in the nutrition domain, the following instructions were given: “Recall all of the stated or unstated rules related to nutrition that applied to you [your child] during your [your child’s] adolescence. Write out each rule as a declarative sentence of what should or should not be done.” For each generated rule, parents and their children responded to six 7-point Likert-type scales about the rule (anchored by Not at all and A great deal), described below. The third section of the questionnaire consisted of 25 items. These items included one about the student’s current health, chosen for its predictive validity (Idler & Kasl, 1991), as well as questions about health risk behaviors adapted from the 1995 National College Health Risk Behavior Survey (CDC, 1997) and the Project GRAD 2-year follow-up health survey (Saelens et al., 2000).

Separate coding schemes for rules generated in each health domain were inductively derived by two of the researchers and an additional trained coder following general research practices for qualitative coding (Lindolf & Taylor, 2002). In particular, a randomly drawn sample of 100 rules from the data set of each domain was selected for the purpose of developing the coding scheme. To assess intercoder reliability, two coders independently coded a randomly drawn 20% of the rules in each domain. Inter-coder reliability was acceptable (Cohen kappa values of \( .86 - .93, p < .001 \)). The two coders each coded half of the remaining rules for each domain.

Rule articulation was operationalized as the average of two items: “the extent to which you [your parents] directly stated the rule to your child [you]”; and “the extent to which you [your parents] provided justification to your child for the rule [provided you with justification for the rule].” Reliability was assessed using Cronbach’s alpha, resulting in the following values for parents and for children, respectively: nutrition, .76, .67; exercise, .85, .77; and sun protection, .97, .96. Rule sanctioning was operationalized through a single item: “the extent to which you [your parents] would have responded negatively if your child [you] had not followed the rule.” Parental modeling was operationalized through a single item: “the extent to which the rule applied to you/your spouse [your parents].” The children’s compliance with the rule during their adolescence was operationalized through the following item: “the extent to which you perceived that your child [you] followed the rule during [your] adolescence.” Because participants could report multiple rules for each health domain, scores on rule articulation, rule sanctioning, parental modeling, and rule compliance were averaged across all of the rules that a participant generated for a given health domain. Thus, four scores existed for each respondent: rule articulation, rule sanctioning, parental modeling, and rule compliance.

Current young adult health behaviors were measured using the college student’s self-report and the parent’s perceptions of their child’s behaviors. Nutrition behaviors were assessed by two items: “How many servings of fruits and vegetables (such as fruit, fruit juice, green salad, raw or cooked vegetables) do you think you [your child] ate yesterday?” and “How many servings of food high in fat content (such as hamburgers, hot dogs, sausage, french fries,
potato chips, cookies, doughnuts, pie, cake) do you think you [your child] ate yesterday?”
Exercise behavior was assessed by one item: “During the past 3 months, how many days per week on average did you [your child] have at least 20 minutes of exercise?” Sun protection behavior was measured by one item: “On a scale of 1 (never) to 5 (always), how often during the past 12 months did you [your child] protect your [his or her] skin from the sun (using sunblock, hat, sunglasses, etc.).”

Data Analysis
The unit of analysis for the first research question was a reported rule. After rule categories were derived, the percentage of parents and the percentage of children reporting at least one rule of that type were determined. The unit of analysis for the second and third research questions was the parent-young adult dyad. Separate parent and child scores were produced for each dyad on perceived rule articulation, rule sanctioning, parental modeling, compliance during adolescence, and current young adult health behavior(s). Research Questions 2 and 3 were analyzed using canonical correlation analyses. Canonical correlation is a statistical procedure that examines the correlation between a vector of independent variables and a vector of dependent variables while taking into account the statistical interdependence among variables within each vector. Because parent and child perceptions are interdependent due to a shared family membership, we deemed it appropriate to include both perceptions in the independent variable vector and in the dependent variable vector, with the parent-child dyad serving as the unit of analysis. The independent variable set consisted of parent and child perceptions of rule articulation, rule sanctioning, and parental modeling for the relevant health domain. The dependent variable set consisted of parent and child perceptions of child compliance during adolescence (RQ2) or current young adult health practice (RQ3).

RESULTS
Nutrition
One hundred fifty-three parent-young adult dyads provided complete data on nutrition rules, producing 994 rules, in 11 categories. A mean of 3.22 rules was reported by parents (SD = 1.41), and their children reported a mean of 3.28 rules (SD = 1.36). As shown in Table 1, four nutrition rules were reported by approximately one third or more of all parents and all children: a rule that imposed a limit on the amount of unhealthy food that could be consumed; a rule that urged the consumption of fruits and vegetables; a rule that urged a well-balanced diet; and a rule that imposed a temporal constraint on when unhealthy foods could or could not be consumed.

Table 2 reports parent and college-aged child mean and standard deviation scores for all variables responsive to the second and third research questions. Paired t tests indicated that parents reported significantly higher scores than their college-aged children on both rule articulation (t(152) = 5.23; p < .0001) and parental modeling (t(152) = 2.91; p < .004).
The canonical correlation for child compliance during adolescence identified two significant functions. The first function produced a significant canonical correlation value of .53 and a redundancy index of .13 in predicting compliance (Wilks’ λ = .58; X²(12) = 81.37; p < .0001), and the second function resulted in a significant canonical correlation value of .45 with a redundancy index of .11 (Wilks’ λ = .80; X²(5) = 32.56; p < .0001). The first canonical function reflects the positive prediction of child perceptions of compliance during adolescence (canonical loading = −.95) from child perceptions of rule sanctioning (canonical loading = −.69), child perceptions of rule articulation (canonical loading = −.66), and child perceptions of parental modeling (canonical loading = −.65). The second canonical function reflects the positive prediction of parent perceptions of child compliance during adolescence (canonical loading = .98) from parent perceptions of rule articulation (canonical loading = .84) and secondarily parent perceptions of rule sanctioning (canonical loading = .69).

Current rule compliance was analyzed with a canonical correlation analysis whose independent variable set was the same as above and whose dependent variable set consisted of four variables: parent and college-aged child perceptions, respectively, of current consumption of fruits/vegetables and of high-fat food consumption. Results revealed no significant canonical correlation functions.
Exercise Rule Domain

One hundred eighteen parent–young adult dyads produced complete data on exercise rules, resulting in 525 rules in six categories. Parents reported a mean of 2.02 rules ($SD = 1.17$), and their college-aged children reported a mean of 2.43 rules ($SD = 1.28$). Table 3 presents a summary of the substantive rule categories. Two kinds of exercise rules were reported by at least a third of parents and of children: a general rule that encouraged physical activity of some kind and a rule that encouraged involvement in some organized physical activity, such as team sports.

Table 4 reports mean and standard deviation scores for parents and for children relevant to the analyses addressing the second and third research questions. A series of paired $t$ tests comparing parents to their college-aged children
Table 2. Parent and College-Aged Child Mean and Standard Deviation Scores for Nutrition Rule-Based Social Control Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parent</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule articulation* (predictor)</td>
<td>5.80 (1.09)</td>
<td>5.17 (1.15)</td>
</tr>
<tr>
<td>Rule sanctioning (predictor)</td>
<td>4.40 (1.07)</td>
<td>4.30 (1.24)</td>
</tr>
<tr>
<td>Parental modeling* (predictor)</td>
<td>5.18 (1.58)</td>
<td>4.69 (1.57)</td>
</tr>
<tr>
<td>Child compliance during adolescence (outcome)</td>
<td>5.12 (1.14)</td>
<td>5.01 (1.15)</td>
</tr>
<tr>
<td>Current child fruits/vegetables consumption (outcome)</td>
<td>2.53 (1.41)</td>
<td>2.58 (1.57)</td>
</tr>
<tr>
<td>Current child high-fat consumption (outcome)</td>
<td>2.03 (1.51)</td>
<td>1.89 (1.32)</td>
</tr>
</tbody>
</table>

Note: *Paired t test comparing parents to their children was significant at p < .004 level.

Table 4. Parent and College-Aged Child Mean and Standard Deviation Scores for Exercise Rule-Based Social Control Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parent</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule articulation* (predictor)</td>
<td>5.31 (1.33)</td>
<td>4.99 (1.47)</td>
</tr>
<tr>
<td>Rule sanctioning* (predictor)</td>
<td>4.34 (1.56)</td>
<td>3.90 (1.60)</td>
</tr>
<tr>
<td>Parental modeling* (predictor)</td>
<td>4.70 (2.00)</td>
<td>3.99 (1.80)</td>
</tr>
<tr>
<td>Child compliance during adolescence (outcome)</td>
<td>5.57 (1.29)</td>
<td>5.57 (1.32)</td>
</tr>
<tr>
<td>Current child exercise (outcome)</td>
<td>3.55 (1.70)</td>
<td>3.56 (1.57)</td>
</tr>
</tbody>
</table>

Note: *Paired t test comparing parents and their children was significant at p < .05.

Compliance (canonical loading = -.83) and secondarily predictive of parent perceptions of child compliance (canonical loading = -.68).

The canonical loadings for the independent variable set suggest that child compliance (as perceived by both children and secondarily by parents) was positively predicted from child perceptions of rule articulation (canonical loading = -.84), parent perceptions of sanctioning (canonical loading = -.71), and to a lesser extent, child perceptions of sanctioning (canonical loading = -.61). Finally, canonical correlation analysis was used to assess current exercise by the college-aged child, resulting in no significant canonical function.

Table 3. Parent and College-Aged Child Reported Exercise Rules Communicated by Parents During Child’s Adolescence

<table>
<thead>
<tr>
<th>Label</th>
<th>Conceptual Definition of Category</th>
<th>Exemplar</th>
<th>% Parents Reporting Rule</th>
<th>% Children Reporting Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Exercise</td>
<td>A rule statement that called for exercise only in a general sense, without reference to quantity or form</td>
<td>‘‘Don’t be a couch potato’’</td>
<td>59.3</td>
<td>69.2</td>
</tr>
<tr>
<td>Specified Organized Activity</td>
<td>A rule statement that articulated a preference for a specific form of exercise that involved formal organization, for example, a sports team or golf</td>
<td>‘‘Join a sports team at school’’</td>
<td>38.1</td>
<td>33.3</td>
</tr>
<tr>
<td>Specified Amount of Exercise</td>
<td>A rule statement that expressed a specific amount or frequency of physical activity</td>
<td>‘‘Exercise at least 3 times a week for 20 min each’’</td>
<td>26.3</td>
<td>20.8</td>
</tr>
<tr>
<td>Specific Nonorganized Activity</td>
<td>A rule statement that articulated a preference for a specific form of exercise that was not formally organized</td>
<td>‘‘Walk more’’</td>
<td>18.6</td>
<td>23.9</td>
</tr>
<tr>
<td>Avoidance of Overexertion</td>
<td>A rule statement that urged the child not to overexert by doing too much exercise</td>
<td>‘‘Don’t overdo’’</td>
<td>13.6</td>
<td>21.4</td>
</tr>
<tr>
<td>Injury Prevention</td>
<td>A rule statement about how best to exercise in order to avoid injury</td>
<td>‘‘Drink lots of water to avoid dehydration’’</td>
<td>8.5</td>
<td>10.3</td>
</tr>
</tbody>
</table>
Sun Exposure Rule Domain

One hundred forty-six parent-young adult dyads provided complete data on sun exposure rules, producing a total of 718 rules in 10 categories. Parents reported a mean of 2.29 rules (SD = 1.28), and their college-aged children reported a mean of 2.63 rules (SD = 1.33). As Table 5 illustrates, the data were dominated by a single category—the expression of a general rule to use a sunblock/sunscreen. Of secondary importance was a rule that expressed in a more detailed manner the need to use a sunblock/sunscreen, usually by specifying time of use, location of use, and the amount or type of product. A general expression of the need to avoid excessive exposure to the sun also appeared in approximately one third of the sample.

Table 6 reports mean and standard deviation scores for parents and their college-aged children and for all variables responsive to the second and third research questions. Paired t tests indicated that parents reported higher scores than their college-aged children for rule articulation (t(145) = 2.12; p < .05), rule sanctioning (t(145) = 2.39; p < .02), and child compliance during adolescence (t(145) = 2.49; p < .02). College-aged children reported significantly higher current sun protection than was perceived by their parents (t(145) = −2.09; p < .05).

The canonical correlation for perceived rule compliance by the children during their adolescence revealed two significant functions, the first of which produced a canonical correlation value of .47 with a redundancy index of .13 in predicting compliance (Wilks’s λ = .68; X^2(12) = 53.83; p < .0001), and the second function produced a canonical correlation value of .36 with a redundancy index of .05 (Wilks’s λ = .87; X^2(5) = 18.86, p < .002). The first function suggested that parent perceptions of child compliance (canonical loading = −.97) was positively predicted from parent perceived rule articulation (canonical loading = −.97), and to a lesser extent, child perceived rule sanctioning (canonical loading = −.77), and to a lesser extent, child perceived rule sanctioning (canonical loading = −.56). The second function suggested that child perceptions of compliance during adolescence (canonical loading = .86) was positively predicted from child perceptions of parental modeling (canonical loading = .79) and secondarily from child perceptions of rule articulation (canonical loading = .62) and child perceptions of rule sanctioning (canonical loading = .60). Finally, current sun protection by the college-aged child was assessed using a canonical correlation, resulting in no significant canonical function.

DISCUSSION

The findings of this study indicate that parents in this sample communicated a variety of health rules to their adolescents. The greatest variety of rules was reported for nutrition and sun exposure; by contrast, exercise featured a more limited range in the types of rules communicated. There was a general pattern of parents reporting greater rule socialization behaviors that occurred during their children’s adolescence than their young adult children reported. Parents perceived that they articulated nutrition, exercise, and sun protection rules to a greater extent than their children perceived. Similarly, they perceived themselves as being better models of good nutrition and exercise through adherence to the rules than did their children. They also perceived that they provided greater rule sanctions for exercise and sun protection rules than did their children, and they perceived that their children complied better with sun protection rules than the children reported complying during adolescence. These parent-child discrepancies in perceptions suggest that parents may have an exaggerated sense of how they accomplish social regulation about health behaviors. Similarly, other research has shown that parents underestimate their adolescents’ risky health behaviors (e.g., Guilamo-Ramos, Jaccard, Turrisi, Johansson, & Bouris, 2006).

Parents may benefit from either self-monitoring their own practices more carefully or soliciting feedback from their children to ensure that they are communicating in clear, efficacious ways.

The content of the health rules across the three domains was comparable to recommended health behavior. The U.S. Dietary Guidelines recommends specific servings of fruits and vegetables (4 1/2 cups) and dairy (3 cups or equivalent) (U.S. Departments of Health and Human Service, 2005). Two rules in the nutrition domain (Fruit/Vegetable Consumption, Dairy Consumption) reflect these recommendations, with some variability. Research demonstrates that there is a distinction between rules about
Table 5. Parent and College-Aged Child Reported Sun Protection Rules Communicated by Parents During Child’s Adolescence

<table>
<thead>
<tr>
<th>Label</th>
<th>Conceptual Definition of Category</th>
<th>Exemplar</th>
<th>% Parents Reporting Rule</th>
<th>% Children Reporting Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Sunblock Directive</td>
<td>A rule statement that expressed, in the most general of ways, the desirability of using sunblock/sunscreen</td>
<td>“You should wear sunblock”</td>
<td>75.3</td>
<td>71.2</td>
</tr>
<tr>
<td>Specific Sunblock Directive</td>
<td>A rule statement that directed the use of sunblock in a more specific manner than the General Sunblock Directive. The specification usually varied by time (when to use it), location (the place to be used), the body part (e.g., the face), the amount (e.g., SPF factor), or the brand or type of product to be used or avoided</td>
<td>“You should use sunscreen between the hours of 10 and 2”</td>
<td>34.2</td>
<td>45.2</td>
</tr>
<tr>
<td>General Directive to Avoid Excessive Sun Exposure</td>
<td>A rule statement that expressed, in the most general way, the desirability of avoiding too much exposure to sunlight</td>
<td>“Don’t sit out in the sun too long”</td>
<td>30.8</td>
<td>32.9</td>
</tr>
<tr>
<td>Directive to Use Gear to Protect Skin</td>
<td>A rule statement that expressed the desirability of wearing a specific piece of clothing or accessory in order to avoid harm to the skin</td>
<td>“Wear a hat if you go out in the sun”</td>
<td>25.3</td>
<td>20.5</td>
</tr>
<tr>
<td>Specific Directive to Avoid Excessive Sun</td>
<td>A more specific rule than the General Directive above, specifying how to avoid excessive sun exposure. The specification usually varies by time (acceptable hours to be in the sun), location (e.g., avoid tanning salons), or amount (how much time to be exposed)</td>
<td>“Don’t tan in the middle of the day”</td>
<td>19.9</td>
<td>21.9</td>
</tr>
<tr>
<td>Proactive Eye Protection</td>
<td>A rule statement that expressed the desirability of protecting the eyes from excessive sunlight</td>
<td>“Don’t look directly into the sun”</td>
<td>14.4</td>
<td>21.2</td>
</tr>
<tr>
<td>Sunburn Care</td>
<td>A rule statement that addressed how to treat a sunburn</td>
<td>“Use aloe vera for sunburn”</td>
<td>3.4</td>
<td>6.8</td>
</tr>
<tr>
<td>Dehydration Protection</td>
<td>A rule statement to prevent or alleviate dehydration of the body</td>
<td>“Drink lots of water if you’re in the sun”</td>
<td>2.7</td>
<td>2.7</td>
</tr>
<tr>
<td>Directive to Monitor Skin</td>
<td>A rule statement that expressed the desirability of monitoring the skin for possible signs of cancer</td>
<td>“Watch for changes in moles”</td>
<td>0.0</td>
<td>1.4</td>
</tr>
<tr>
<td>Need for Adequate Sunlight</td>
<td>A rule statement that expressed the desirability of getting adequate exposure to sunlight for its health benefits</td>
<td>“We get vitamins from being out in the sun. So play outside”</td>
<td>0.0</td>
<td>1.4</td>
</tr>
</tbody>
</table>

what foods to eat and rules about how to eat; most public health interventions have placed their focus on the former (Clark et al., 2007). Of the 11 types of nutrition rules that emerged in this study, 5 focus on how to eat (Temporal Limitation, Breakfast, Three-Meals-a-Day, Clean Plate, and Prohibition Against Overeating), a potential concern, as substantial evidence exists demonstrating that prohibiting certain types of food results in children being overweight (Clark et al.).

The recommendation for exercise for adolescents by the U.S. Departments of Health and Human Service (HHS; 2005) is 60 min most days of the week. The four most frequent preventive rules in the health domain of exercise were all focused on promoting exercise in the
adolescents, though perhaps not to the extent of the HHS recommendations. Similarities to recommendations were also seen in the sun exposure rules. The CDC (2008) has five specific recommendations for adolescents: “seek shade, cover up (e.g., wear a shirt), get a hat, grab shades, and rub it (sunscreen) on.” At least half of respondents wrote rules about sunscreen and staying out of the sun (similar to seeking shade). The other three CDC recommendations also emerged as themes in the rules in this study. The methodology in this study of eliciting open-ended responses about health rules is a strength of the study. This may have resulted in different findings, however, if participants had been given a set of closed-ended items to respond to. Future work might productively use closed-ended items on the basis of the rule categories developed in this study.

This study has added to the social control literature in two ways. First, it has complemented the focus on status-equal relationships by attending to a relationship characterized by unequal power relations—the parent-child relationship. Although relational parties who have greater power can certainly accomplish social control through informal persuasive strategies, the power differential of parent and child roles allows parents to deploy an additional form of social control through regulation. This study examined one form of regulation—family health rules. Influence and regulation, however, may have greater overlap than conceptualized in social control theory, and this is the second contribution of the study. The content of the preventive health rules identified in this study suggests an important underlying dimension by which rules appear to vary. Some rules are general in expressing the overall value of a healthy practice, whereas other rules offer specific guidelines that address how that healthy practice should be accomplished. For example, the general expression of the need to exercise differs substantively from a specific rule that identifies the kind or frequency of exercise. General rules may function persuasively as ways to accomplish internalization of health-promoting values, whereas specific rules may function in a more regulative manner. Whereas general rules may be important in socializing an adolescent to values, specific rules may be important in providing guidelines of how to accomplish a healthy outcome. Our data do not permit examination of these different pathways of social control, and future research should attend to how rules that vary in their generality-specificity relate to adolescent health practices.

Parental modeling may similarly blur the distinction between informal persuasive influence and regulation. Parental modeling may function in a regulatory manner by legitimizing the scope of the rule; that is, everyone needs to comply with a given rule because the rule has authority over the whole family. Parental modeling, however, may function as an informal persuasive strategy as well; through modeling, the child is potentially persuaded by observing consistency between a parent’s words and actions. Future social control research needs to examine the complex ways in which parental modeling functions.

Social control through rule regulation during adolescence appears to be associated with adolescent rule compliance in complex ways specific to each health domain. This underscores the highly context-specific ways in which social control is enacted (e.g., Lewis et al., 2004). The variables of rule articulation and rule sanctioning surfaced as the consistent predictors of adolescent compliance. Young adult children’s reports of rule articulation (how directly the rule and its justification were stated) were consistently associated with their reports of compliance as adolescents with nutrition, exercise, and sun protection health rules. Further, parents’ perceptions of their own articulation of nutrition rules and sun protection rules were associated with their perceptions of their adolescents’ compliance with these rules. Young adult children’s reports of rule sanctioning of exercise and sun protection rules were associated with their reported compliance of those rules.

Table 6. Parent and College-Aged Child Mean and Standard Deviation Scores for Sun Protection Rule-Based Social Control Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Parent</th>
<th>Child</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule articulation* (predictor)</td>
<td>6.06 (1.10)</td>
<td>5.81 (1.21)</td>
</tr>
<tr>
<td>Rule sanctioning* (predictor)</td>
<td>5.04 (1.39)</td>
<td>4.67 (1.47)</td>
</tr>
<tr>
<td>Parental modeling (predictor)</td>
<td>5.33 (1.70)</td>
<td>5.09 (1.69)</td>
</tr>
<tr>
<td>Child compliance during adolescence*</td>
<td>4.77 (1.48)</td>
<td>4.39 (1.54)</td>
</tr>
<tr>
<td>Current child sun protection* (outcome)</td>
<td>3.01 (1.11)</td>
<td>3.24 (1.13)</td>
</tr>
</tbody>
</table>

Note: *Paired t test comparing parents and their children was significant at p < .05.
That rule sanctioning of nutrition rules was not linked to compliance from the children’s perspective is interesting given the literature, which notes that when parents put stringent controls on food, there is a negative effect on children’s nutrition (Birch & Fisher, 1997). Parents, however, did perceive sanctioning to be associated with compliance for nutrition rules, as well as for exercise and sun protection.

Parental modeling, however, was important only when looking at the children’s perceptions of rule regulation and reported compliance and did not emerge as significantly associated with parental perceptions. Children’s perceptions of their parents’ modeling of nutrition and sun protection rules were associated with their reported compliance with those rules as adolescents. As a more subtle type of social control (Lewis et al., 2004), parental modeling may have emerged as an effective strategy for nutrition as this is where families may be more likely to engage in health-promoting practices together. Parents likely feel pressure to model healthy behaviors at the dinner table; a popular parenting web site recommend that parents set a good example by eating the kinds of food they want their children to eat (Henry, 2007).

Young adult self-reports of current health practices for nutrition, exercise, and sun protection were not predicted from rule-based social control during adolescence from either the perspectives of the parents or the young adults. The college environment of the sample may be particularly powerful, functioning to neutralize health rules communicated during adolescence. On the basis of these results, parents ought to be encouraged to explicitly state and offer justification for health promotion rules for their adolescent children. Delivering sanctions when rules are violated also appears to be a useful strategy in encouraging compliance, although in the nutrition domain, this may not be the case. Consistent with other research, parental modeling also appears to be an important factor. Finally, parents should understand that they generally perceive their own rule regulation practices to be greater than their children perceive them to be.

This initial study of family rules regarding preventive health behaviors is limited by its retrospective nature and the single-item measures of health behavior. Participants may have forgotten some of the rules that were present during adolescence or over- or understated articulation, sanctioning, or modeling. Future research might examine how rules about health communicated from parents to children function at the time they are communicated, not merely with the delayed effects considered in this study. Further, in our study, we used the term adolescence without identifying a specific age range, instead allowing the respondents to define it for themselves. This may have led to parents and young adults reporting on different time periods during adolescence. In addition, given that rules may change from early to late adolescence, a longitudinal study following parents and children from adolescence through young adulthood would be an ideal way to obtain an understanding of the communication of rules and its effect on health behaviors. An additional limitation of this study is that the majority of respondents were female, limiting our ability to generalize to fathers and to sons. Further, the sample was primarily well-educated and Caucasian. Similarly, we did not collect data on whether any of the young adults had children or how much they worked. These limit our ability to generalize findings of this study to other populations. Although we use the term “young adult,” the findings may not be generalized to the population in general, as recent statistics show that only 39% of 18–24-year-olds enroll in college (National Center for Education Statistics, 2008).

Despite the limitations of this study, it is our hope that the descriptive evidence of the multiple types of preventive health rules presented here will lay a foundation for future research. Such work could help to produce evidence that can guide parents in helping their adolescents to adopt healthy preventive behaviors.

REFERENCES


