Summary
Risk-taking Behaviors in Adolescents:
Peer and Family Relationships and Problem Solving Skills

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Risk-taking behaviors that are commonly seen in adolescence are defined as behaviors that are likely to result in illness or death and threaten the health of the individual (Alexander et al., 1990; Russel, Fincham, Randolph & Tilman, 2010; Yılmaz, 2000). Adolescents relationship with their parents and peers is important for understanding risk-taking behaviors (Moran & Du-Bois, 2002; Mounts, 2002; Tilton-Weaver & Galambos, 2003). Research shows that adolescents in peer groups with high participation in risk-taking behaviors are more prone to involvement in risk-taking behavior (Aras et al., 2007; Delikara, 2000; Erdem, Eke, Ögel & Taner, 2006; Goldstein et al., 2005; Yılmaz, 2000). An important element that protects adolescents from the negative effects of peer group and prevents them from participating in risk-taking behaviors are parents who are emotionally close to the adolescent and are able to support without subjecting the adolescent to pressure and prohibition, within a harmonious family enviroment (Bayar, 1999).

Some studies suggest that problem solving skills have a significant effect on risk-taking behaviors (Dodge & Price, 1994; Güner, 2000; Hains & Herrman, 1989). But these studies have several limitations. A study examining the contribution of problem-solving skills to risk-taking behavior in adolescents by addressing risk-taking behaviors all together could not be found.

Because risk-taking behaviors are associated with many variables, it is an issue that needs to be explored with a multidimensional approach. The Problem behavior theory developed by Jessor is one of the most frequently referenced theories in this regard, which is among the psychosocial-based approaches that best explain risk-taking behavior (Jessor et al., 1994). The Theory explains risk-taking behaviors by Social Environment System (SES), Personality System (PS), Perceived Social Environment System (PES) and Behavior System (BS). The Perceived Social Environment System consists of two structures: the remote environment (PES-RE) and the near environment (PES-NE). Each system has protective and risk factors within itself, and risk-taking behaviors are examined through the relationships of these systems with each other and within themselves (Jessor et al., 1994).

A multifaceted study in which risk-taking behavior was examined in conjunction with peer, family relationships, and adolescent's problem-solving skills was not reached in the literature survey. The aim of this study is to investigate the relationship between risk-taking behaviors and family relationships, friend relationships, problem solving skills, risk taking behaviors of adolescents' friends. To this end, the aim is to determine the power of SES, PS, PES-RE and PES-NE to interpret the risk-taking behaviors and to evaluate the unique contributions of the variables discussed in the systems to risk-taking behavior.

Method

Participants

The sample of the study consisted of 1067 high school students (584 male, 483 female) whose ages ranged from 15 to 18 years. The sample was asked to complete a number of questionnaires, including Personal Information Form, Risk Taking Scale, Adolescent Family Process Measure, Peer Relationship Scale, Deviant Behavior of Peers Scale and Interpersonal Problem Solving Inventory.

Materials
Risk Taking Scale, (Bayar & Sayıl, 2005)

Risk-taking behaviors of adolescents are assessed on a 5-point likert type self report scale. Cronbach's alpha internal consistency coefficient of the scale is .90.

Deviant Behavior of Peers Scale, (Galambos & Maggs, 1991)

It is used to determine the extent to which an individual is associated with peers with high criminal poten-

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tial. Cronbach's alpha internal consistency coefficient of the scale is .86.

Peer Relationship Scale, (Kaner, 2000)

It was developed to evaluate peer relationships of adolescents. It consists of four sub-scales: commitment, confidence, self-disclosure and loyalty. In this study Cronbach's alpha internal consistency coefficient is .90 for the total score;.91 (commitment), .73 (confidence), .76 (self-disclosure), .68 (loyalty) for the subscales.

Interpersonal Problem Solving Inventory, (Çam & Tümkaya, 2008).

This scale was developed to measure interpersonal problem solving approach and skills and consists of five sub-scales. These five dimensions are called; 1.approaching problems in a negative way, 2.constructive problem solving, 3.lack of self-confidence, 4.unwilling to take responsibility and 5. insistent-persevering approach sub-scales. The Cronbach's Alfa internal consistency values for the sub-scales are found between .70 and .91.

Adolescent Family Process Measure, (Cernkovich & Giordano, 1987)

This scale is used to examine the multidimensional structure of parental behavior. It is filled by adolescents as two separate forms for both their mothers and fathers. It consists of six sub-scales: closeness, support, close communication, conflict and peer approval. The Cronbach's alpha internal consistency coefficient for the mother form sub-scales is as follows: .76 (closeness), .75 (support), .83 (monitoring), .83 (close communication), .85 (conflict), .63 (peer approval). For the father form sub-scales is as follows: .88, .68, .91, .91, .82, .70.

Procedure

Since data were collected on a voluntary basis, participants were initially provided with brief information about the purpose of the study. Questionnaires were distributed to volunteers. On average, participants took between 25 and 30 minutes to complete the questionnaire.

Results

A series of variance analyzes and t-tests were used to determine whether adolescent's risk-taking behaviors changed according to age, gender, income level of parents, education level of parents and alcohol use in the family.

According to the results of one-way variance analysis, male adolescents in comparison to females ($F_{1,1058} = 70,941$, $p < 0.001$), older adolescents to youngers ($F_{3,1058} = 6,352$, $p < 0.01$), higher income adolescents to lower income adolescents ($F_{2,1063} = 8.703$, $p < 0.001$, $\eta^2 = .2$), adolescents whose father is at the secondary education level to adolescents whose father is at the higher education level ($F_{2,1042} = 3,328$, $p < 0.05$, $\eta^2 = .01$) have significantly higher risk-taking behaviors.

According to the mothers education level, there was no significant difference between the risk-taking behaviors of adolescents ($F_{2,1053} = 1.955$, $p > 0.05$, $\eta^2 = 0$). Adolescents with alcohol use in their family ($t = -6.40$, $sd = 230.98$, $p < .001$) have significantly higher risk-taking behaviors than those without alcohol use in their family.

Correlation Relations Between Continuous Measurements in Research

There was a positive, significant and strong relationship between scores of Risk Taking Scale and scores of Deviant Behavior of Peers Scale. There was a positive, significant and medium-level relationship between scores of Risk Taking Scale and scores of Peer Relationship Scale loyalty subscale. In addition, the relationship between the Risk Taking Scale and the Peer Relations Scale subscale scores of commitment, confidence and self-disclosure subscale was not significant.

Adolescent Family Process Measure-Mother form support, closeness, monitoring, close communication sub-dimensions had negative; the conflict and peer approval sub-dimensions had positive, significant and weak relationship between the scores of Risk Taking Scale. Adolescent Family Process Measure-Father form support, closeness, monitoring, close communication sub-dimensions had negative; the conflict sub-dimension had positive, significant and weak relationship between the scores of Risk Taking Scale. There was no significant relationship between the father form peer approval sub-dimension and scores of Risk Taking Scale.

Interpersonal Problem Solving Inventory sub-dimension of Lack of self-confidence and Unwilling to take responsibility had positive; the Constructive problem solving sub-dimension had negative, significant and weak relationship between the Risk Taking Scale. There was no significant relationship between the Insistent-persevering approach and the Approaching problems in a negative way sub-dimensions and the Risk Taking Scale.

Regression Analysis of Variables Predicting Risk-Taking Behavior

Hierarchical regression analysis was conducted to determine the strength of SES, PS, PES-RE, PES-NE to interpret risk-taking behaviors and to evaluate the unique contribution of the variables discussed within the systems to risk-taking behavior. In the first step, Social Environment System's variables that significantly

predict risk-taking scores are 'Age', 'Gender', 'Family income, which explain .09 of the total variance of risk-taking behaviors. In the second step, the Interpersonal Problem Solving Inventory subscales, which were added as Personality System's variables, increased the explained variance by .06 and increased the total variance to .15. At this stage, Constructive problem solving, Unwillingness to take responsibility and Insistent-persevering approach variables are significant predictors of risk-taking behaviors. In the third step, Adolescent Family Process Scale Mother and Father Form Sub-Scales and Peer Relationship Scale Sub-Scales, which were added to the model as Perceived Social Environment System- Remote Environment variables, increased the variance explained by .14 and increased the total variance to .29. In the fourth step, Deviant Behavior of Peers Scale and 'Alcohol Use in Family' variables, which were added to the model as Perceived Social Environment System-near environment variables, increased the variance explained by .26 and increased the total variance to .55. When the Deviant Behavior of Peers Scale entered the regression analysis, many variables predicting risk-taking behaviors in the previous steps became statistically insignificant.

Discussion

This research is the first study to examine adolescent risk-taking behaviors, along with problem-solving skills, family-peer relationships, and peer risk-taking behaviors. It was observed that all the systems defined in Problem Behavior Theory predict risk-taking behaviors.

The most powerful predictor of risk-taking behaviors was the Perceived Social Environment System-near environment structure, which includes the presence of deviant friends. This was followed by Perceived Social Environment System-remote environment structure, where parent and friend relationships were evaluated. It was determined that the Social Environment System, where age, gender, income level of the family and the education level of the parents were evaluated, was the third in terms of predictive power to risk-taking behaviours and the Personality System was the last. Although problem solving skills were the least contributing variable to the explained variance in risk-taking behaviors; this research revealed that developing Problem Solving Skills in intervention studies will be effective in reducing risk-taking behaviors. When the presence of deviant friends was included in the analysis, it was seen that although many variables that had a significant effect in the first three steps lost their predictive properties, Constructive Problem Solving Skills still significantly predicted risk-taking behaviors.

To sum up the hierarchical regression analyses had showed that being male, high income, higher conflict with the mother, lower constructive problem solving skills, higher peer acceptance by the mothers, higher loyalty and trust to friends, low confidence, more alcohol users in their families are risk factors of risk-taking behaviors.

There is still a point to be clarified in the relationship between the adolescent's risk-taking behaviour and the presence of deviant friends. Do adolescents tend to take risks because they have deviant friends, or do adolescents who are already showing these behaviors make friends from those who are showing these behaviors as themselves? Conducting new studies on this subject will contribute to the understanding of the phenomenon.

In this research, 55% of the total variance of adolescents' risk-taking behaviors was explained and 45% of risk-taking behaviors still needs to be explained. It is believed that the systems that are discussed in the framework of Problem Behavior Theory should be examined more in detail and that the variables in the systems must be increased in order to determine each system's ability to predict risk-taking behaviors.