

## Identifying Adolescent Risk Typologies and Associated Parenting Characteristics

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### Abstract

Risk behavior has problematic predictors and consequences yet also may play a normative role in adolescent development. To address this paradox risk typologies based on behavioral (e.g., alcohol use and misconduct) and emotional risk (i.e., self esteem and depressed mood) were generated for 1108 adolescents (age = 18.16). Seven typologies emerged. Both males and females had No Problem (low emotional and behavioral risk), Internalizers (high emotional risk, low behavioral risk), and Multiple Problem (high emotional and behavioral risk) clusters. Two resulted only for males: (1) Depressed Drinkers (high emotional risk, high alcohol use) and (2) Happy Risk-Takers (low emotional risk, high behavioral risk). Only females had a Happy Drinkers cluster (low emotional risk, high alcohol use). A three step strategy to validate the clusters was then undertaken. Findings validate the clusters and assist to further clarify the context and role of risk behavior in adolescent development.

## Background

### *Paradox of Risk Behavior*

Extant research on risk behavior and its function during adolescence has resulted in conflicting findings. On one hand, risk behavior is detrimental to adolescent development. Indeed unintentional injury was the leading cause of death for adolescents, ages 15-19 years in 2004. Nearly half were due to motor vehicle crashes; an estimated third was related to alcohol use (Maternal and Child Health Bureau [MCHB], 2006).

In contrast, a parallel body of research has highlighted the contribution of risk behavior to normative, positive adjustment and well-being (Baumrind, 1987; Chassin, Presson, & Sherman, 1989; Newcomb & Bentler, 1989; Shedler & Block, 1990). In part, statutory risk behaviors such as cigarette smoking, alcohol consumption, and sexual intercourse may aid in the transition to adulthood, as adolescents are modeling adult-appropriate behavior. These behaviors can help adolescents fit in with peer groups, which in turn may enhance their mental health (Silbereisen & Noack, 1988); hence, the paradox of adolescent risk behavior.

The examination of emotional risk together with general risk behavior may assist in deciphering the paradox of adolescent risk behavior. For the purpose of this paper, emotional risk refers to high levels of depressed mood and low levels of self esteem, both of which have been associated with suicide and risk behavior (e.g., Brown, et al., 2008; Davis, Uezato, Newell, & Frazier, 2008).

### *Variable and Person-centered Approaches to Emotional Risk and Risk Behavior*

Most research on adolescent behavioral and emotional risk has utilized a variable-centered approach, using methods such as correlation, regression, and structural equation

analyses (e.g., Mancini & Huebner, 2004). Under this approach, individuals are considered to differ quantitatively, rather than qualitatively on the dimension under consideration (Magnusson & Stattin, 1998; Magnusson & Bergman, 1988). The variable-centered approach assumes that values on a continuous scale for any given variable can be interpreted in a meaningful way for all individuals, without regard to the context in which they exist, including other behaviors (Magnusson & Stattin, 1998). For example, moderate levels of alcohol consumption may be considered problematic for any adolescent, regardless of the levels of other risk behaviors or emotional risk. That is, moderate drinking is viewed as being as problematic for the straight-A student with high self-esteem as it is for the adolescent who is also taking drugs and reporting high levels of depressed mood.

The challenge of incorporating context using the variable centered approach may account for the conflicting findings regarding adolescent behavioral and emotional risk. For example, depression and low self esteem have been related to greater adolescent substance use in clinical (Kinnier, Metha, Okey, & Keim, 1994) and non-clinical samples (Connor, Poyrasli, Ferrer-Wreder, & Grahame, 2004; Höfler, et al., 1999; Institute of Medicine [IOM], 1994; Newcomb & Bentler, 1989; DeSimone et al., 1994; Diego, Field, & Sanders, 2003; Kubik, Lytle, Birnbaum, Murray, & Perry, 2003). In contrast, other studies have reported that adolescents who engaged in more danger risk-taking behaviors, including drug use, alcohol use (DeSimone, Murray, & Lester, 1994; Tyssen, Vaglum, Aasland, & Gronvold, 1998), speeding, and hitchhiking (Gonzalez, Field, Yando, & Gonzalez, 1994), reported better emotional well-being than their non-risk-taking peers. Yet other studies have found no relation between emotional risk

(e.g., low self esteem (Mancini & Hueber, 2004; Mullan & NicGabhainn, 2002) or high depression Lasko, et al., 1996)) and risk behavior.

Gender differences in emotional and behavioral risk have also emerged in variable-centered studies. Girls have reported higher levels of depressive symptoms (Maag & Irvin, 2005) and anxiety (Sears & Armstrong, 1998) than boys. Other studies have reported higher levels of depressive symptoms related to alcohol use for female adolescents but not for males (Locke & Newcomb, 2001; Poulin, et al., 2005). In general males participate in higher levels of risk behavior than females (Centers for Disease Control and Prevention, 2008; Hankin, et al., 1998).

In contrast to the variable-centered approach, the person-centered approach considers several attributes of the individual to create person types based on similarities of persons across the included variables. Unlike the variable-centered approach, the person-centered approach directly accounts for interactions between variables, thus capturing a bit of the context in which the risk behavior occurs. Cluster analysis is a typical analytical technique in this process.

In general, person-centered studies have solely included either behavioral (Chung, 1996; Luthar & Ansary, 2005; Weden & Zabin, 2005) or emotional risk (Flannery, Sneed, & Marsh, 2003). The risk behaviors examined by each study have also varied, including drinking (Schulenberg, et al., 1994), conventional bonding and deviant peer group bonding (Elliott, et al., 1989), and psycho-social behaviors associated with risk behavior (Magnusson & Bergman, 1988). However, four papers have examined either emotional or behavioral risk typologies and their relation with other risk measures.

Crockett and her colleagues (2006) developed five adolescent typologies based on four psychological measures: self-regulation, proneness to risk, self-worth, and perceived academic competence. The clusters were then compared in relation to various risk outcomes: In general the two low psychological risk groups (i.e., the Average group (high self regulation and average levels of other three measures) and the Optimal group (high self regulation and self perceptions with low risk) reported less risk behavior than the other three risk groups (Emotional Risk, Low Self Regulation, and Behavioral Risk; Crockett, Moilanen, Raffaelli, & Randall, 2006). This included substance use and sexual risk-taking.

In the same year Waller and colleagues (2006) considered 16 risk typologies based on substance use and sexual risk behaviors by gender. For males *most* of the risk clusters were associated with depression, whereas for females *all* of the risk clusters reported greater risk of depression. Youth using IV drugs reported the greatest risk of depression (Waller, Hallfors, Halpern, Ford, & Guo, 2006). Thus it appears that the association between risk behavior and depression may differ by gender and type of risk.

Three person typologies based on prior and current alcohol use were created by Pashcall and associates (2005). In this case, moderate drinkers had lower depression scores than abstainers and heavy drinkers. However this finding did not endure after accounting for socioeconomic status and health (e.g., medicating for depression, overall health, and previous alcohol related problems; Pashcall, Freisthler, & Lipton, 2005).

An earlier study of adolescent typologies also revealed the conundrum posed by adolescent alcohol use. Binge drinking was examined across three points in time. High levels of alcohol use were not consistently linked to high levels of depression. Although slight gender

differences emerged, in general adolescents who started drinking earlier and drank more had lower depression scores than infrequent drinkers, non-binge drinkers including abstainers, and moderate drinkers who started drinking at older ages (Chassin, Prost, & Pitts, 2002).

In sum, existing person-centered risk literature has primarily focused on only one or two specific risk behaviors (e.g., alcohol use or psychological risk), providing a less than complete picture of the individual as a whole. The incorporation of both emotional and behavioral risk factors in developing person-centered typologies may provide greater insight about the role of risk behavior in adolescent development.

Within the person-centered studies that incorporate either emotional or behavioral risk, the examination of gender is limited. Some studies examined only males (e.g., Magnusson & Bergman, 1990) or females (e.g., Magnusson & Stattin, 1998). Other studies included both males and females, but both genders were analyzed together in one analysis (Schulenberg, et al., 1994; Elliott, et al., 1989), despite the typically greater participation of males in risk behavior and females' higher levels of emotional risk (Hankin, et al., 1998; Petersen, Sarigiani, & Kennedy, 1991). Thus, studies that apply the same analysis separately by gender are needed, to consider interesting similarities and differences.

#### *Adolescent Risk Behavior and Parenting Characteristics*

One method of testing the validity of the person-centered typologies is to examine their relation with associated variables that are not used in creating the typologies. In this case parenting characteristics, long studied in relation to adolescent risk behavior (Glueck & Glueck, 1950), provide us with such an opportunity. In general, lower levels of parental nurturance (i.e.,

warmth and support) and expectations (Baumrind, 1987) have been related to greater adolescent emotional and behavioral risk.

The authoritative parenting style with high levels of support and expectations has been associated with low levels of adolescent delinquency and psychological distress. This finding has been validated across family structure, ethnicity, and economic level of the family (Steinberg, Mounts, Lamborn, & Dornbusch, 1991). Family supportiveness has been related to lower levels of substance use (Anderson & Henry, 1994; Wills & Cleary, 1996) and depression (Simons & Miller, 1987) and higher levels of self esteem (Parker & Benson, 2004) — especially for girls (Nielsen & Metha, 1994). In a similar vein monitoring, communication about substance use, and parental warmth are noted protective factors against adolescent alcohol and marijuana use (Cleveland, et al., 2005). Parental warmth (Gil-Rivas, Greenberger, Chen, & Lopez-Lena, 2003) and greater family activity (Elliot, et al., 1989) also have been negatively correlated to adolescent depression.

Authoritarian and authoritative parenting, both characterized by high expectations, have been associated with lower levels of adolescent alcohol and other substance use compared to families with alternative parenting approach (Foxcroft & Lowe, 1995; Lamborn, Mounts, Steinberg, & Dornbusch, 1991; Anderson & Henry, 1994).

Low expectations characterize both the laissez faire and the neglectful parenting style. Adolescents whose parents provide low strictness and supervision have similar marijuana and alcohol use regardless of parents' acceptance and involvement levels (Adalbjarnardottir & Hafsteinsson, 2001). Characteristics of neglectful parenting have been related to the poorest

outcomes compared to the other parenting styles, including higher levels of behavioral problems and substance use (Lamborn et al, 1991; Adalbjarnardottir & Hafsteinsson, 2001).

Finally, family conflict has been related to higher levels of depression (Gil-Rivas, et al., 2003), lower self-esteem and higher alcohol (Bray, Adams, Getz, & Stovall, 2001) and drug use (Caughlin & Malis, 2004). In sum, parenting behaviors that are indicative of greater support and higher expectations should be associated with lower levels of adolescent risk, both emotional and behavioral. Such indicators might include low conflict, high involvement and high levels of warmth and support.

This study makes several contributions to the research on adolescent risk behavior. First, the person-centered approach is utilized. Second, all analyses are conducted separately by gender. Third, emotional risk is examined simultaneously with behavioral risk to allow for further interpretation of the role of risk behavior by person typology. Finally, examination of parenting characteristics in relation to adolescent typologies should aid in validating the clusters and again, provide further support in understanding adolescent risk behavior.

## Methods

### *Sample*

These data were collected as part of an eighteen-year nine-wave, longitudinal project, the Michigan Study of Adolescent Life Transitions [MSALT]. Initially, the adolescents (631 girls and 477 boys) were recruited from eight middle and lower-middle class communities in southeastern Michigan. Data analyzed in this paper were collected in 1990 when adolescents were in twelfth grade (Wave 6). The mean age of the sample was 18.22 years for males and 18.10 years for females. The questionnaires were completed in 90-minute group sessions.

Participants were excused from classes and gathered in a cafeteria or auditorium to complete the survey. Research staff members were available to answer any questions (Eccles et al., 1989).

### *Measures*

The emotional and behavioral risk scales were created via separate analyses using exploratory factor analysis with oblique rotation. The criteria in creating the factors included factor loadings greater than .30 and an eigenvalue greater than one (Kim & Mueller, 1978). The resulting emotional risk scales include depressed mood and self-esteem. The behavioral risk scales were alcohol use, drug use, skipping school, rebellion, and misconduct. An elaboration on these measures is found in Table 1.

The parenting characteristics examined in relation to adolescent emotional and behavioral risk included: laissez-faire, authoritative, clear and high standards, low conflict, warmth, parental involvement, and parental encouragement. The scales for each of the parenting characteristics differed and are designated in Table 1. The laissez-faire and authoritative parenting scales were standardized due to the different scales of the included measures. The parenting measures were created using the same approach outlined for the adolescent risk measures.

### *Plan of Analysis*

Cluster analysis allows us to identify typologies of adolescents based on the self-reported emotional and behavioral risk. In order to validate the resulting clusters three strategies were applied. These included: (1) replication of the clusters for randomized split half samples (Aldenderfer & Blashfield, 1984), (2) examination of mean level differences of emotional and

behavioral risk by cluster, and (3) consideration of mean level differences of parenting characteristics by cluster. All analyses were conducted by gender.

First, to evaluate the internal consistency of the final clusters, the male and female samples were divided into two random samples, based on the respondents' arbitrarily assigned identification number (even and odd). Agglomerative hierarchical cluster analysis (Aldenderfer & Blashfield, 1984) with the cosine distance measure was conducted separately on these four sub-samples (Male/Even, Male/Odd, Female/Even, and Female/Odd). Here typologies are formed by grouping individual cases into clusters. Cluster membership numbers increase until all of the participants are members of one single cluster (Norusis, 1987). The average linkage between groups method was used in combining the clusters. This method uses information from all pairs of differences between clusters, as opposed to other cluster combining methods that place importance on the smallest or the greatest difference between clusters (Norusis, 1987). All seven risk scales were standardized prior to use in the cluster analysis. The correlations of the behavioral and emotional risk scale means by the four even and odd groups were analyzed. Significant correlations by gender confirm that the clusters were replicated for the split half samples.

Second, ANOVAs by cluster membership were conducted to verify significant mean differences for the variables included in the clusters. The greater number of differences indicates the distinct nature of each of the clusters. These distinctions also aid in naming the clusters.

The third and final step taken to further validate the clusters involves testing the relation between cluster membership and associated variables not included in the cluster formation.

ANOVAs of parenting characteristics by cluster membership were performed. Significant relations in the predicted directions further validate the clusters.

### Results

*Cluster replication.* The first step of cluster validation was the correlation tests of the risk factor means by cluster for the split half samples by gender<sup>1</sup>. The female clusters correlated to the following degree based on the standardized means of the cluster characteristics (see Table 2 for female cluster references): Cluster #1 ( $r=.86$ ;  $p<.001$ ), Cluster #2 ( $r=.99$ ;  $p<.001$ ), Cluster #3 ( $r=.86$ ;  $p<.01$ ), and Cluster #4 ( $r=.92$ ;  $p<.01$ ). For the males, the split half clusters correlated in this manner (see Table 3 for male cluster references): Cluster #1 ( $r=.94$ ;  $p<.01$ ), Cluster #2 ( $r=.94$ ;  $p<.01$ ), and Cluster #3 ( $r=.96$ ;  $p<.001$ ). The male Cluster #4 and the Cluster #5 each emerged in only one of the separate split halves. These final clusters were not combined due to their unique nature, as indicated by their low correlation ( $r=.36$ ;  $p = .63$ ).

*Mean level differences of risk measures by cluster.* Consideration of the mean level differences of emotional and behavioral risk by cluster is the second step of cluster validation. MANOVA confirmed that when tested simultaneously the mean levels of the behavioral and emotional risk scales differed significantly by cluster membership for both males and females ( $p<.001$ ; see Tables 2 and 3). ANOVA served to investigate the specific differences in the risk-taking and well-being scales by cluster membership (Aldenderfer & Blashfield, 1984). Tukey tests determined significant pairwise contrasts ( $p<.05$ ).

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<sup>1</sup> Following the interpretation of the hierarchical cluster analysis of the split halves by gender, 24 males were dropped prior to assigning cluster membership. Specifically, sixteen males were excluded from the even subsample and eight males from the odd subsample; they were considered outliers in relation to the resulting clusters (Edelbrock, 1979). No females were dropped.

Based on the significant contrasts, the female clusters included the No Problem, Internalizers, Multiple Problem, and Happy Drinkers clusters. The No Problem clusters consistently had the lowest mean level of emotional and behavioral risk, including the significantly higher levels of self esteem than the Internalizers and the Multiple Problem clusters ( $p < .001$ ).

The Internalizers reported the highest mean levels of depressed mood ( $p < .001$ ) and lowest levels of self esteem than the three other clusters ( $p_{\text{No Problem \& Happy Drinkers}} < .001$ ;  $p_{\text{Multiple Problem}} < .05$ ). Regarding behavioral risk, the Internalizers had lower mean levels of alcohol use ( $p < .001$ ), skip school ( $p < .001$ ), and rebellion ( $p < .001$ ) than the Multiple Problem and Happy Drinker clusters. No mean level difference between the Internalizers and the No Problem cluster emerged for drugs or misconduct. In sum, the Internalizers are characterized by high levels of emotional risk and low levels of behavioral risk.

The Multiple Problem cluster had the second highest levels of emotional risk after the Internalizer cluster ( $p < .001$ ). However, unlike the Internalizers, the Multiple Problem cluster also displayed the highest level of behavioral risk on each of the five measures. High mean levels of both emotional and behavioral risk led this cluster to be called the Multiple Problem cluster.

Finally, the females also have a Happy Drinker cluster defined by high levels of self esteem and alcohol use. The emotional risk levels of this cluster were significantly lower than those of the Multiple Problem and Internalizer clusters ( $p < .001$ ). Regarding behavioral risk, the Happy Drinkers consistently reported lower levels of risk behavior than the Multiple Problem cluster ( $p < .001$ ), with the exception of alcohol use ( $p = .70$ ). No significant difference emerged in

the alcohol use of the Happy Drinkers and the Multiple Problem clusters, while both exceeded the alcohol use of the No Problem and Internalizer clusters.

Five clusters resulted for the males; three were similar to the females' — the Internalizers, the No Problem, and the Multiple Problem clusters. The Depressed Drinkers and the Happy Risk-Takers also emerged for the males. Again, the No Problem cluster had significantly lower behavioral and emotional risk levels, including higher levels of self esteem, than the other clusters ( $p < .001$ ) with the exception of the Happy Risk-Takers with whom no significant difference emerged for emotional risk.

The Internalizers had significantly higher levels of depressed mood than all clusters with the exception of the Depressed Drinkers ( $p < .001$ ). The Internalizers also had behavioral risk levels that were consistently and significantly lower than Multiple Problem cluster ( $p < .001$ ).

The Multiple Problem cluster had mean levels of depressed mood that were greater than the No Problem and Happy Risk-Taker clusters ( $p < .001$ ). Regarding behavioral risk, the Multiple Problem cluster had the highest mean levels for all five scales ( $p < .001$ ).

The males also had a Happy Risk-Taker cluster. No significant differences emerged between the mean levels of self esteem and depressed mood between the Happy Risk-Takers and the No Problem cluster, with both having the lowest emotional risk levels of the five clusters. The Happy Risk-Takers did report significantly more skipped school, rebellion, and misconduct than the Internalizers, No Problem, and Depressed Drinker clusters ( $p < .001$ ).

The fifth and last cluster for the males is the Depressed Drinker cluster. No mean level differences of self esteem and depressed mood emerged for the Depressed Drinkers and the Internalizers, with both clusters have high levels of emotional risk. In addition, no significant

differences emerged for alcohol and drug use between the Depressed Drinkers and the Multiple Problem clusters. The Depressed Drinkers ( $\underline{M}=1.83$ ) did report significantly higher alcohol and drug use than the Internalizers ( $\underline{M}=1.10$ ) and No Problem clusters ( $M=1.06$ ;  $p<.001$ ). However, given that a value of 1 is "never" and 2 is "once", drug use was not interpreted as a distinguishing factor for the Depressed Drinkers.

*Cluster membership and parenting characteristics.* Alone, the significant differences in risk factor means by cluster are an incomplete test of the clusters' validity (Aldenderfer & Blashfield, 1984). The third and final strategy to test the validity of the clusters is to examine mean level differences in parenting characteristics by cluster. MANOVAs that simultaneously examined the seven parenting measures by cluster membership were significant for both males and females ( $p<.001$ ; see Tables 4 and 5). ANOVAs further revealed significant differences for all parenting measures by cluster with the exception of clear and high standards scale.

The female Multiple Problem cluster had higher levels of laissez-faire parenting than the Internalizers ( $p<.05$ ). Authoritative parenting occurred at higher mean levels for the two clusters with low emotional risk (No Problem and Happy Drinkers) than the Internalizers and Multiple Problem clusters. The Internalizers ( $p<.01$ ) and Multiple Problem females ( $p<.001$ ) also reported greater conflict than the No Problem girls. The female Multiple Problem group also had higher levels of conflict than the Happy Drinkers ( $p<.01$ ). The female No Problem and the Happy Drinkers clusters reported higher levels of warmth and parental involvement than the Internalizers or the Multiple Problem girls ( $p<.001$ ). The No Problem girls had higher levels of parental encouragement than the Multiple Problem girls ( $p<.05$ ).

The males also had significant mean differences for six of the seven family processes (see Table 5). The male Happy Risk-Takers and the Depressed Drinkers reported higher levels of laissez-faire parenting than the males of the No Problem cluster ( $p < .05$ ). Authoritativeness was significantly higher for the Happy Risk-Takers and the No Problem clusters than the Internalizers ( $p < .01$ ). The boys of the Internalizers and Multiple Problem clusters reported greater conflict than those in the No Problem cluster ( $p < .01$ ). Regarding warmth, the No Problem cluster members reported higher levels than the other four clusters ( $p < .01$ ). Finally, the No Problem cluster had higher levels of parental involvement than the Internalizers ( $p < .05$ ) and the Multiple Problem males and higher parental encouragement than the Internalizers ( $p < .05$ ) and the Depressed Drinkers ( $p < .01$ ).

The male Happy Risk-Takers ( $p < .01$ ), Internalizers ( $p < .001$ ), Depressed Drinkers ( $p < .01$ ) and the Multiple Problem ( $p < .01$ ) clusters all reported lower levels of warmth compared to the No Problem group. The Internalizers reported less parental involvement than the No Problem males ( $p < .05$ ). Finally, the male No Problem cluster had a higher mean level of parental encouragement than the Internalizers ( $p < .05$ ) and the Depressed Drinkers ( $p < .01$ ).

### Discussion

Adolescent risk behavior is paradoxical. Risk behaviors are developmentally normative yet these behaviors have been linked with concurrent and subsequent developmental challenges. Much research has examined risk behaviors in isolation using a variable-centered approach. Past person-centered analyses have not been conducted separately by gender or have focused exclusively on either emotional or behavioral risk in relation to the typology development. This study contributes to our understanding of adolescent risk behavior by applying a person-centered

approach to *various* behavioral risks while *simultaneously* incorporating emotional risk. All analyses were also conducted by gender. The resulting person typologies assist in assessing risk-taking behavior and its role in adolescence — whether functional, problematic, or both.

Four clusters emerged for females and five for males. The Internalizers, No Problem, and Multiple Problems clusters occurred for both genders. The three similar clusters for males and females support similarity in patterns of behavioral and emotional risk by sex. This is in keeping with previous research that reported gender similarities in emotional and/or behavioral risk (e.g., Sears & Armstrong, 1998; Maag & Irvin, 2005).

Additionally, three clusters were identified for either males or females. These included the female Happy Drinkers, and the male Happy Risk-Takers and Depressed Drinkers. The difference in emotional risk between the Happy Drinkers, and the Depressed Drinkers by gender could be a reflection of gender differences in coping with depression. Male depression is more often associated with externalizing behavior than female depression, which is often exhibited as internalizing behavior. Adolescent females most often use emotional focused coping (Gjerde, Block, & Block, 1988; McDaniel & Richards, 1990) such as social support, wishful thinking, and worrying. In contrast, common male coping strategies are problem-focused (Gjerde, Block, & Block, 1988; McDaniel & Richards, 1990), including activities such as distraction, denial, ignoring the issue, and acting out to cope (Frydenberg, 1997). Males thus seem more likely to use alcohol to cope with depression than females. For the male Depressed Drinkers, alcohol may be a form of distraction coping.

The male Happy Risk-Takers may be more comparable to the female Happy Drinkers than the male Multiple Problem cluster. In general, males have engaged in more rebellious,

reckless, and antisocial risk behavior than female adolescents (Essau, 2004; Mancicni & Huebner, 2004). Yet alcohol use appears to be normative for both genders. For instance, a recent study revealed no gender differences in heavy alcohol use (Maag & Irvin, 2005). Finally, both the Happy Risk-Takers and the Happy Drinkers have high levels of authoritative parenting comparable to that of the No Problem cluster. This parenting style is associated with healthier adolescent development in contrast to laissez-faire or neglectful parenting. Hence, the behavioral risk levels of these two groups may be more normative than problematic.

Risk behavior in conjunction with healthy emotional tone may serve as an activity by which to enhance peer relationships and support (Silbereisen & Noack, 1988). Both the female No Problem girls and the Happy Drinkers were characterized by low emotional risk. The Happy Drinkers were consistently participating in significantly higher levels risk behaviors than the No Problem group, yet with the exception of alcohol use, the risk behaviors of the Happy Drinker cluster occurred less often than those of the Multiple Problem group, who also reported higher levels of emotional risk. The Happy Drinkers may use alcohol and other risk behaviors as a socializing tool to increase their social support network, which may enhance their emotional wellbeing, despite alcohol's depressant effect.

The Multiple Problems group and the Happy Risk-Takers reported high levels of risk behavior, but the emotional risk of the Multiple Problem group was much greater than the Happy Risk-Takers'. The motivation behind the risk behavior for the two groups may differ by emotional risk. The Happy Risk-Takers may display a more developmentally or socially supportive expression of risk behavior with greater emotional well-being than Multiple Problem group, which may be acting out in relation to their emotional distress. Conversely, the higher

levels of risk behavior may exacerbate poor emotional health. This study's analyses do not address relations across time. Future examinations of the clusters will consider behavioral and emotional risk during early adolescence and later adulthood in relation to cluster membership.

The analyses' inclusion of family processes served to further validate the clusters and helped to clarify the context of the clusters. In general, previous research implied that healthier youth outcomes are more often associated with authoritative or authoritarian parenting and least expected in families displaying laissez faire or neglectful parenting styles (e.g., Lamborn, et al., 1991). This study's results further support this general association, particularly in relation to female emotional risk.

Family processes of females most often differed by cluster in relation to levels of emotional not behavioral risk. For example, higher levels of family warmth, lower levels of parent-adolescent conflict (Gil-Rivas et al., 2003), and greater authoritative parenting (Steinberg, et al., 1991) were previously associated with lower levels of adolescent depression. In keeping with this, the female Internalizers and Multiple Problem groups reported lower levels of parental warmth and authoritative parenting and higher levels of conflict than their peers in other clusters.

On the other end of the spectrum, the female No Problem and the Happy Drinker clusters (both with low levels of emotional risk) quite consistently reported higher levels of beneficial family processes. These included authoritativeness, low conflict, warmth, involvement, and encouragement. Again this finding is consistent with previous research (Gil-Rivas, et al., 2003; Simons & Miller, 1987).

A somewhat similar, but less distinctive pattern of family processes emerged for the male clusters. The No Problem cluster consistently had significantly higher levels of warmth,

involvement, and encouragement than two to three of the clusters with higher levels of emotional risk (i.e., Internalizers, Depressed Drinkers, and the Multiple Problems clusters). No significant differences in family processes emerged between the No Problem and the Happy Risk-Taker clusters with the exception of warmth, of which the No Problem cluster had higher levels.

In addition, the male No Problem cluster was more likely to report authoritative processes (high standards and high warmth) than the Internalizers, of whom a greater proportion reported authoritarian parenting (i.e., high standards and low warmth). This finding differed from that of Lamborn, et al. (1991), who found no significant difference in adolescent psychological symptoms between authoritative and authoritarian parenting. However, these earlier analyses were not done separately by gender, although girls had higher levels of psychological distress than boys. When examined separately by gender, depressed mood may be a more definitive characteristic for boys, who typically have overall lower levels than girls.

Despite this paper's interesting and compelling contributions to furthering our understanding of the paradox of adolescent risk behavior, a number of precautions must be attended to regarding interpretation and generalizability of the findings. First, the participants' representation is limited in scope. The sample is primarily white. All survey respondents resided in Michigan and must have participated in one to five waves of previous data collection efforts. Thus the sample is limited in its generalizability – both within the state of Michigan and to white youth.

Second, the study's data were collected in 1990. It is legitimate to believe that 12<sup>th</sup> grade students of 1990 may differ from their present day counterparts. Although adolescents have remained quite stable in their alcohol use, binge drinking has slightly decreased (Johnston,

O'Malley, Bachman, & Schulenberg, 2006). The likelihood of youth reporting depression during an outpatient visit has increased substantially across time (Ma, Lee, & Stafford, 2005), however, the suicide rate for persons 10-24 years declined 28.5% from 1990 to 2003 (Centers for Disease Control and Prevention, 2007).

Finally, the study's inclusion of self esteem and depressed mood was helpful in further understanding the context and role of adolescent risk behavior. However, the inclusion of clinical measures of depression and other mental health issues in person-centered analysis could shed further light on behavioral risk — either as a normative event or a cause for concern. This is an intriguing topic of future research

The development and validation of adolescent risk clusters provide a rich opportunity for further exploration of the role of adolescent risk — both emotional and behavioral — in relation to normative adolescent development. This study's groundwork affords the opportunity to study both predecessors and consequences associated with particular adolescent risk typologies. Exploring the within person interaction of emotional and behavioral risk and the typologies' relation to parenting characteristics assists in clarifying when risk behavior may be more problematic or normative.

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Table I.  
Wave 6 Adolescent Risk and Parenting Measures

Domain	Variables
Emotional Risk (how often in past 6 months)	<p><i>Scale:</i> 1 = never, 7 = daily</p> <p><b>Depressed Mood</b> 3 items: e.g., “How often do you feel unhappy, sad, or depressed”, <math>M=3.5</math>; <math>SD=1.2</math>; <math>\alpha=.73</math>.</p> <p><b>Self Esteem</b> 3 items: e.g., “How often do you feel satisfied with yourself the way you are”, <math>M=4.9</math>; <math>SD=1.3</math>; <math>\alpha=.80</math>.</p>
Behavioral Risk (how often in past 6 months)	<p><i>Scale:</i> 1=never; 2=one time; 3=2-3 times; 4=4-6 times; 5=7-10 times; 6=11-20 times; 7=21 or more times.</p> <p><b>Alcohol</b> 2 items: e.g., “get drunk”, <math>\alpha</math> <math>M=3.7</math>; <math>SD=2.2</math>; <math>\alpha=.94</math>.</p> <p><b>Skip School</b> 2 items: e.g., “How often in the past 6 months did you skip school?”, <math>\alpha</math> <math>M=3.0</math>; <math>SD=1.5</math>; <math>\alpha=.88</math>.</p> <p><b>Rebellion</b> 5 items: e.g., “disobey parents on an important issue” (1 = never, 7 = 21 or more times), <math>M=2.5</math>; <math>SD=1.2</math>; <math>\alpha=.81</math></p> <p><b>Drugs</b> 4 items: e.g., “use marijuana or hash”, <math>M=1.4</math>; <math>SD=.8</math>; <math>\alpha=.75</math></p> <p><b>Misconduct</b> 8 items: e.g., “have contact with police for something you did or that they thought you did”, <math>M=1.4</math>; <math>SD=.6</math>; <math>\alpha=.77</math></p>
Family Processes	<p><b>Laissez-faire parenting</b> 3 items: e.g., “parents let me decide how late to stay out” (1=my parents just tell me what to do; 2=my parents ask me how I feel and then they decide; 3=my parents and I make the decision together; 4=my parents tell me how they feel and then I decide; and 5=my parents let me decide), “when I do something I am not supposed to and my parents find out about it, they very often let me get away with it” (1 = never, 7 = a lot), <math>M=0</math>; <math>SD=.78</math>; <math>\alpha=.58</math>.</p> <p><b>Authoritative parenting</b> 9 items (reverse coded): e.g., “My parents criticize me or punish me a lot more than I deserve” (1= never and 7=a lot). “My parents want me to follow their directions even if I disagree with their reasons” (1=never true; 2=sometimes true; 3=usually true; and 4=always true), <math>M=.0</math>; <math>SD=.6</math>; <math>\alpha=.82</math>.</p> <p><b>Clear and high standards</b> 3 items: e.g., “My parents make clear what they expect of me” (1 = never. 7 = a lot). <math>M=4.5</math>; <math>SD=1.4</math>; <math>\alpha=.79</math>.</p> <p><b>Conflict</b> 3 items (reverse coded): e.g., “My mother and I argue about what I should be doing or how I should behave” (1=a lot more than in most families; and 7=a lot less than in most families), <math>M=3.27</math>; <math>SD=1.5</math>; <math>\alpha=.75</math>.</p> <p><b>Warmth</b> 4 items: e.g., “Members of my family are very close and get along very well” (1=strongly disagree; 7=strongly agree), “Our family enjoys doing things together” (1 = never, 7 = a lot), <math>M=4.6</math>; <math>SD=1.4</math>; <math>\alpha=.77</math></p> <p><b>Parental involvement</b> 3 items: e.g., “My father takes an interest in my activities” (1 = never, 7 = a lot), <math>M=5.0</math>; <math>SD=1.5</math>; <math>\alpha=.80</math>.</p> <p><b>Parental encouragement</b> 2 items: e.g., “My parents encourage me to do my best on everything that I do” (1 = never, 7 = always), <math>M=6.0</math>; <math>SD=1.3</math>; <math>\alpha=.86</math>.</p>

Table II  
ANOVA and MANOVA Results of Mean Cluster Characteristics for Females  
Mean (Standard deviation)

<u>Characteristics</u>	#1 No <u>Problems</u> (N = 278)	#2 <u>Internalizers</u> (N=113)	#3 <u>Multiple Problem</u> (N=143)	#4 <u>Happy Drinkers</u> (N=73)	<u>F</u>	<u>Contrasts</u>
Depressed Mood	3.22 (.82)	5.01 (.82)	4.33 (1.05)	2.96 (.85)	149.39***	2>3>1,4
Self Esteem	5.21 (1.17)	3.87 (1.13)	4.31 (1.24)	5.33 (1.06)	48.72***	1,4>3>2
Alcohol	2.00 (1.19)	3.43 (1.90)	5.57 (1.60)	5.79 (1.33)	254.38***	3,4>2>1
Skip School	2.34 (1.25)	3.05 (1.43)	4.04 (1.29)	3.34 (1.68)	52.17***	3>4>2>1
Rebellion	1.56 (.66)	2.06 (.76)	3.44 (1.16)	2.45 (.75)	163.63***	3>4>2>1
Drugs	1.05 (.40)	1.18 (.71)	1.80 (.96)	1.38 (.72)	41.21***	3>1,2,4; 4>1
Misconduct	1.11 (.44)	1.17 (.57)	1.54 (.44)	1.27 (.26)	30.46***	3>1,2,4; 4>1

\*\*\* p<.001

Results were analyzed using one-way MANOVA, between-groups design. This analysis revealed a significant multivariate effect for the cluster characteristics by cluster membership (4 levels), Wilks' Lamda = .18,  $F(21, 1714.8)$ -  $p < .0001$ .

Table III.  
ANOVA and MANOVA Results of Mean Cluster Characteristics for Males  
Mean (Standard deviation)

<u>Characteristics</u>	#1 <u>Happy Risk-Takers</u> (N = 139)	#2 <u>Internalizers</u> (N=84)	#3 <u>No Problem</u> (N=153)	#4 <u>Depressed Drinkers</u> (N=30)	#5 <u>Multiple Problem</u> (N = 53)	<u>F</u>	<u>Contrasts</u>
Depressed Mood	2.71 (.89)	4.21 (1.02)	2.61 (.78)	4.25 (.94)	3.60 (1.30)	59.95***	2,4>5>1,3
Self Esteem	5.48 (1.11)	4.32 (.98)	5.50 (1.00)	4.28 (1.00)	4.32 (1.21)	33.13***	1,3>2,4,5
Alcohol	5.61 (1.92)	3.22 (1.92)	2.25 (1.50)	6.42 (.94)	6.61 (1.14)	126.58***	4,5>2>3; 5>1
Skip School	4.04 (1.49)	2.51 (1.12)	1.99 (1.17)	3.15 (1.25)	4.03 (1.58)	55.15***	1,5>2,4>3
Rebellion	3.74 (1.07)	2.43 (.90)	1.95 (.78)	2.85 (1.08)	3.98 (1.09)	87.09***	1,5>2,4>3
Drugs	1.98 (1.40)	1.10(.29)	1.06 (.35)	1.83 (1.19)	2.40 (1.22)	32.96***	4,5>2,3
Misconduct	2.17 (1.01)	1.37 (.46)	1.26 (.43)	1.59 (.55)	2.50 (1.03)	46.98***	5>1>2,3,4

\*\*\* p<.001

Results were analyzed using one-way MANOVA, between-groups design. This analysis revealed a significant multivariate effect for the cluster characteristics by cluster membership (5 levels), Wilks' Lamda = .16,  $F(28, 1616.7)$ -  $p < .0001$ .

Table IV.  
ANOVA and MANOVA Results: Female Clusters and Family Characteristics  
Mean (Standard Deviation)

Family Characteristics	#1 No Problems (N = 228)	#2 Internalizers (N = 99)	#3 Multiple Problem (N=121)	#4 Happy Drinkers (N = 66)	F	Contrasts <sup>a</sup>
Laissez-Faire	-.13 (.66)	-.19 (.75)	.08 (.78)	.02 (.87)	3.41*	3>2
Authoritativeness (std.)	.22 (.57)	-.22 (.73)	-.17 (.71)	.16 (.67)	15.97***	1,4>2,3
Clear & High Standards	4.26 (1.45)	4.41 (1.50)	4.50 (1.51)	4.42 (1.49)	.79	
Conflict	2.82 (1.55)	3.46 (1.46)	3.83 (1.47)	3.02 (1.38)	13.39***	2,3>1; 3>4
Warmth	4.91 (1.38)	4.20 (1.50)	4.13 (1.35)	4.92 (1.30)	12.44***	1,4>2,3
Parental Involvement	5.30 (1.54)	4.47 (1.64)	4.55 (1.59)	5.27 (1.52)	10.49***	1,4>2,3
Parental Encouragement	6.15 (1.23)	5.86 (1.28)	5.78 (1.45)	6.22 (1.20)	3.24*	1>3

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; <sup>a</sup> based on Tukey HSD test

Results were analyzed using one-way MANOVA, between-groups design. This analysis revealed a significant multivariate effect for the family characteristics by cluster membership, Wilks' Lamda = .86,  $F(21, 1447.8) = 4.59$ ;  $p < .0001$ .

Table V.  
ANOVA and MANOVA Results: Male Clusters and Family Characteristics

Family Characteristics	#1 Happy Risk-Takers (N=127)	#2 Internalizers (N=74)	#3 No Problems (N=136)	#4 Depressed Drinkers (N=24)	#5 Multiple Problem (N=48)	F	Contrasts
Laissez-Faire	.20 (.75)	.10 (.65)	-.08 (.70)	.40 (.76)	.19 (.80)	3.77**	1,4>3
Authoritativeness (std.)	.04 (.55)	-.22 (.56)	.03 (.59)	-.15 (.69)	-.14 (.58)	3.62**	1,3>2
Clear & High Standards	4.73 (1.35)	4.63 (1.13)	4.68 (1.32)	4.67 (1.27)	4.67 (1.34)	.07	
Conflict	3.27 (1.35)	3.56 (1.20)	2.89 (1.49)	3.60 (1.55)	3.73 (1.29)	5.17***	2,5>3
Warmth	4.61 (1.34)	4.25 (1.08)	5.13 (1.18)	4.21 (.95)	4.35 (1.09)	9.32***	3>1,2,4,5
Parental Involvement	4.98 (1.44)	4.84 (1.06)	5.39 (1.41)	4.82 (1.32)	4.79 (1.34)	3.22*	3>2,5
Parental Encouragement	5.96 (1.29)	5.67 (1.21)	6.23 (1.11)	5.27 (1.28)	5.79 (1.12)	4.90**	3>2,4

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ ; <sup>a</sup> based on Tukey HSD test

Results were analyzed using one-way MANOVA, between-groups design. This analysis revealed a significant multivariate effect for the family characteristics by cluster membership, Wilk's Lamda = .81,  $F(28, 1378.7) = 3.01$ ;  $p < .0001$ .