

Adolescent Suicide: Music Preference as an Indicator of Vulnerability

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Abstract. Objective: This preliminary study investigated possible relationships between adolescents' music preference and aspects of their psychological health and lifestyle. Method: Students (mean age 14.76 years) from two randomly chosen high schools completed self-report questionnaires on preferred music types and messages in the music. In addition the Youth Self-Report provided information about suicide ideation, deliberate self-harm, "depression," and "delinquency." Brief risk taking and drug taking scales were administered in addition to questions about family environment. Results: A marked gender bias was shown to exist with 74% of girls preferring pop music compared with 70.7% of boys preferring rock/metal. Significant associations appear to exist between a preference for rock/metal and suicidal thoughts, acts of deliberate self-harm, "depression," "delinquency," drug taking, and family dysfunction. This was all particularly true for girls. In addition, feeling sadder after listening to the preferred music appeared to distinguish the most disturbed group. Conclusions: The authors recommend that further academic study of these associations is warranted. Both preference for rock/metal music, particularly in girls, and feeling worse after listening to the music may be indicators in adolescents of vulnerability to suicidal thoughts and actions. *J. Am. Acad. Child Adolesc. Psychiatry*, 1993, 32, 3:530-535. **Key Words:** adolescent, suicide, indicators, music preference.

Although adolescent suicide is a relatively rare event, as a cause of death it ranks third after car accidents and homicide for this age group in America (Blum, 1987) but is second to car accidents as the most frequent cause of adolescent death in Australia, given the lower rate of homicide. The suicide rate for males has tripled in the last 10 years and is now between 9 and 12 per 100,000 (Kosky, 1987; Shaffer et al., 1988; Smith and Crawford, 1986). It remains true for this age group that the male rate for completed suicide is between 3 and 5 times the rate for females (Monk, 1987). The female rate for attempted suicide is higher than for males (Moscicki, 1988), although the rates may have come closer over the past 15 years (Davis and Kosky, 1991).

Depression, hopelessness, suicidal thoughts, previous suicidal attempts, drug abuse, and adverse factors in the family environment are all well-researched risk factors in both additional attempts and in completed suicide (Kienhorst, 1990).

There is also evidence that adolescents may be influenced to attempt or complete suicide by other adolescent suicides within a suicide cluster (Berman 1988; Gould and Davidson, 1988; Martin, 1992) or may be influenced by television and newspaper reports of suicide (Goldney, 1989; Shaffer, 1974).

More recently, distressed parents of suicide victims have accused heavy metal music groups of influencing their adolescent's death; Judas Priest and Ozzie Osbourne have both

been unsuccessfully sued by parents because their music was being played while adolescents died. The media and lay press have made much of such associations. However, despite the immense amounts of money and time invested by adolescents in pop and rock music and the reported relevance of some of the lyrics in the music (Mark, 1986; Mendelson et al., 1989), it is surprising that little academic work has investigated the possible links between music preference and adolescent suicide.

The very few studies that have been done in Child and Adolescent Psychiatry (King, 1988; Weidinger and Demi, 1991) suggest that significantly higher percentages of disturbed or drug-abusing youngsters prefer heavy metal music. No study appears to have been done on a normal population of adolescents. In this study we set out to examine possible relationships between adolescents' reported music preference and suicidal thoughts and behaviors as well as other aspects of their psychological health and lifestyle.

Method

Design and Sample

This preliminary cross-sectional study was completed with ethics approval from the Committee on Investigations at Flinders University Medical School. Two government high schools were chosen at random from the southern half of the state of South Australia (total population 1.5 million). One school serves a semirural/residential hills population with a bias toward middle social class. The second school serves a defined area population in southern metropolitan Adelaide, the capital city, and has a bias toward lower and low middle socioeconomic background. Both populations are predominantly white Anglo-Saxon with about 15% Mediterranean and European influence. Both schools have less than 1% aboriginal students.

Questionnaires and the plan of the research were discussed in person with the principal of each of the two schools, who provided consent after discussion with teaching staff and parents. An information and consent letter was

Accepted September 23, 1992.

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sent to parents with the weekly school newsletter approximately 1 week before commencement of the study. All year 10 students present on the day completed the confidential questionnaire with no discussion in the classroom, during one period of teaching time (approximately 40 minutes). Questionnaires were collected the same day.

Measures

Students were asked about basic family structure, personal experiences in the previous 6 months, and their preferred music type.

Family closeness. Perceived family closeness was measured with a single question having four possible responses (very close, close, not very close, not at all close) subsequently collapsed to either "close" or "not close." Closeness is a complex construct and may include the physical relationship of being close and touching, the emotional feeling associated with relationship, and the concepts of caring and concern. It may also have negative connotations relating to being bound by family ties. However, in other work (Martin et al., unpublished) it appears to have a positive association with "healthy" responses on the Family Assessment Device (Epstein et al., 1983) and a positive association with high "care" and low "protection" on the Parental Bonding Instrument (Parker et al., 1979) (Table 1). There appears to be little association with two parent family structure. Although additional work is necessary to test the validity and reliability of the question, it does have face validity as a measure of this aspect of family life. In this study, the question was used to provide a global measure of perceived family functioning.

Suicidal thoughts and behavior. The questionnaire contained the Achenbach Youth Self Report (YSR) (Achenbach and Edelbrock, 1987). Responses to question 18 [(In the last 6 months) "I deliberately try to hurt or kill myself"], and question 91 [(In the last 6 months) "I think about killing myself"] provided information on deliberate self-harm and suicidal thoughts, respectively. Although these questions do not create a broad picture of the spectrum of suicidal thinking and behavior, they have been used in other studies, and responses appear to have both validity and reliability (Joffe et al., 1988, Ritter, 1990). Rey and Bird (1991) have used a

complex model involving responses to both of these questions from each of the YSR and the Child Behaviour Checklist (Achenbach and Edelbrock, 1983); this model may prove to have the ability to predict vulnerability to suicide with more certainty. However, in the present study only the raw responses from the YSR are presented.

Depression. The "depressed" subscale of the YSR was used as a measure of depressive thought and affect. Although there remain questions regarding the subscale's relationship with clinical depression, the YSR manual reports on nearly 1,000 adolescents clinically referred for mental health service. These provided information for the empirically based behavior profile syndromes or subscales. Ritter (1990) has reported on the depressed subscale in the context of high risk for suicide.

The male and female subscales contain some different items and provide scores that are not comparable; responses for males and females, therefore, are presented separately.

Delinquency. The "delinquent" subscale of the YSR was used as a measure of delinquency. Both concurrent and criterion validity have been established (Achenbach and Edelbrock, 1987). Ritter (1990) has reported on the delinquent subscale in the context of high risk for suicide.

Adolescent Risk Taking Scale. Confusion exists over the term "risk taking." In the family, in friendship, in school, in training and in therapeutic groups, in individual therapy we encourage young people to take risks. Many activities and occupations involve risk. In particular we admire and reward circus performers and stunt men; war heroes, explorers, and space travelers; entrepreneurs and financial wizards; writers, artists, and musicians who dare to break with tradition. In fact, for all of us our daily lives are full of smaller risks; we all light fires, use electric appliances, drink alcohol, drive cars, and take public transportation. At the first annual American Medical Association Congress on Adolescence it was proposed that taking risks was an integral part of the transition from childhood to adulthood (Brown and Hendee, 1989). However, risk-taking activities have both an associated morbidity and mortality. Accidents are the main cause of death in young people (Blum, 1987), lead to serious morbidity and enormous ongoing cost to the community,

TABLE 1. Association of "Closeness" with Other Factors

	(Male and Female Combined)					
	Close	N	Not Close	N	t	p
Parental Bonding Instrument subscales						
Father care	24.63 ± 6.70	344	17.95 ± 8.62	43	5.95	0.0001
Father protection	8.65 ± 5.68	344	16.26 ± 8.68	43	-7.74	0.0001
Mother care	27.57 ± 6.80	354	19.52 ± 8.19	45	7.37	0.0001
Mother protection	9.53 ± 6.88	354	15.63 ± 8.17	45	-5.53	0.0001
Family Assessment Device (60 item)						
General function	2.00 ± 0.48	190	2.90 ± 0.47	30	-9.53	0.0001
(unpaired t test, p two-tailed).						
	Close	N	Not Close	N	χ ²	p
Family structure						
2-parent family	89.6%	301	10.4%	35		
1-parent family	85.9%	67	14.1%	11	0.87	0.35

and excessive risk taking may be part of depressive states and suicidal intent (Clark et al., 1990).

Despite the potential seriousness of risk-taking behaviors, there is a paucity of simple well-validated questionnaire scales for the measurement of risk taking, particularly for younger adolescents. A review of the literature reveals scales for adult psychiatric patients (Steiner, 1972) and college students (Lee, 1985, 1987) that are complex to adapt, brief scales where the validity is apparently untested (Richardson et al., 1989; Robinson et al., 1987), and lengthy scales in which questions may be unsuitable for the younger adolescent (Clark et al., 1990). Despite this, such scales have shown associations with depression, suicidal thoughts and behaviors, drug and alcohol abuse.

As a result of the absence of a suitable scale, the Adolescent Risk Taking Scale was developed by the research team to measure risk-taking behaviors in the younger adolescent (ages 12 to 18 years). The scale consists of 14 items drawn from a large pool of items. It has seven items with face validity for active risk taking (for instance, "I accept rides in cars from people I do not know," "I take part in dangerous activities") (internal consistency $\alpha = 0.73$), and seven items negative for risk taking (for instance, "I enjoy reading," "I like to go to bed early") (internal consistency $\alpha = 0.47$). Questions were designed to fit with the Achenbach YSR in terms of style; that is, answers are "never," "sometimes," and "often" (scored 0, 1, 2; total score 28).

Preliminary results (Martin et al., unpublished) on a large population of adolescence attending high school ($N > 1,300$) suggest it has a normal curve distribution for both females (mode 13, kurtosis 0.24, skewness 0.39) and males (mode 13, kurtosis 0.01, skewness 0.15), with a mean for males of 13.29 ± 4.25 ($SE = 0.16$) and for females of 11.97 ± 4.13 ($SE = 0.16$). There is little variation in means over the age group specified. The scale has been validated against a number of existing scales, despite the stated problems with those scales. For instance, Pearson product-moment correlation with the 54 item Lee Scale is $r = 0.38$, and with the five-item Richardson Risk Scale is $r = 0.56$. It would appear that the scale has construct as well as face validity, but additional validation as well as reliability trials are in progress. At this stage it would appear that the scale can give some indication of risk-taking propensity.

Drugs and alcohol. The brief drug and alcohol questionnaire, drawn from a national survey questionnaire, contains 10 categories of drugs (for instance "alcohol," "tobacco," "marijuana," "prescribed drugs") to which responses are given "never," "once, twice," "3 to 9," "more than 10," referenced to the previous 6 months (scored 0, 1, 2, 3; total score 30).

Music preference. Students were asked to nominate their favorite style of music and then to name two groups or solo singers who exemplified this style. A series of questions explored what messages they perceived in the music and whether they listened to them, what mood they were more likely to be in when listening to the music, and how the music made them feel.

Music categories were based on an analysis of the stated music type preference and named groups. For example the

TABLE 2. *Music Preference as a Percentage (N = 247)*

	Males	Females
Pop music	27.9	70.6
Rock	22.5	17.5
Metal/punk	45.0	7.3
Jazz/blues	1.5	0.9
Christian or classical	3.1	3.7

category "pop music" contained Kylie Minogue, Madonna, New Kids on the Block, Julian Lennon, Wings, Queen; "rock music" included, for example, Midnight Oil, Rolling Stones, Eric Clapton, AC/DC, Guns 'n Roses; "metal/punk" included, for example, Metallica, Judas Priest, Slayer, Ozzie Osbourne, Suicidal Tendencies.

Data Analysis was performed within Statview II® on an Apple Macintosh IIfx. Pearson product-moment correlation, student's *t* test, Chi square, and Spearman rank order correlation were used according to the data type.

Results

The response rate was 93.9% overall for the two schools. The mean age was 14.76 years. There were 138 male and 109 female respondents. More than 70% females nominated pop music as their preference. More males (45%) reported a preference for metal/punk (Table 2). Given the small numbers in jazz/blues and Christian or classical, subjects in these groups were removed from further analysis, leaving 227 students for further analysis.

Although there are discrete types from rock through heavy rock and rap to heavy metal, punk, thrash and death metal, the music also may be seen as a spectrum. Furthermore, statistical analysis using Scheffé post hoc tests of comparison showed that the rock and metal/punk groups were more similar on all measures than they were different, and both were consistently different in the same direction to pop. Given this was true for both males and females, the groups were combined, leaving two major groups for additional analysis: pop ($N = 113$) and rock/metal ($N = 114$).

In the reduced sample ($N = 227$) a strong gender bias existed in these music preference groups with 70.7% of males preferring rock/metal and 74.0% females preferring pop.

Parental Status

For the teenagers reporting a preference for rock/metal, only 63.2% parents were still married and living together compared with 78.6% for those preferring pop. The association was stronger for females, with 40.7% parents separated or divorced ($\chi^2 = 4.14$, $df = 1$, $p < 0.05$). Of note, only 63% females preferring rock/metal had access to biological fathers compared with 81.8% for those preferring pop ($\chi^2 = 4.01$, $df = 1$, $p < 0.05$).

There was no difference between groups as far as parental work status was concerned, with more than 92% of fathers from teenagers preferring pop and rock/metal groups being in full-time work and only 22% of mothers not working either full time or part time.

Perceived Family Closeness

Those respondents preferring rock/metal overall reported a "not close" family relationship with twice the frequency of pop preferrers ($\chi^2 = 4.09$, $df = 1$, $p < 0.05$). For females preferring rock/metal, 34.6% reported a "not close" family relationship, three times the percentage of those preferring pop music ($\chi^2 = 7.08$, $df = 1$, $p < 0.01$).

Suicidal Thinking

Overall, 33.9% of students responded affirmatively, 10.6% claiming such thoughts "often." Consistent with other studies a higher percentage of females (43.3%) claimed suicidal thoughts with 14.4% females claiming such thoughts "often."

More than 31% males and 66% females preferring rock/metal claimed suicidal thoughts in the previous 6 months compared with 14% and 35%, respectively, for pop. The association between rock/metal preference and suicidal thoughts reached significance for females (χ^2 with continuity correction = 6.9, $df = 1$, $p < 0.01$). Eight of the 27 female rock/metal preferrers claimed they had suicidal thoughts "often" as opposed to only 10 of 87 males.

Deliberate Self-Harm

Overall, 21.2% of students responded in the affirmative, 6.4% claiming such acts "often." Consistent with other studies a higher percentage of females (26.9%) claimed deliberate self-harm with 10.6% females claiming "often."

More than 20% males and 62% females preferring rock/metal claimed deliberate self-harm in the previous 6 months compared with 8% and 14%, respectively, for pop. The association between rock/metal preference and deliberate self-harm was not significant for males but reached significance for females (χ^2 with continuity correction = 24.08, $df = 1$, $p = 0.0001$). Five of the 27 female rock/metal preferrers claimed they harmed themselves "often" as opposed to only 4 of 87 males.

A strong correlation existed between thoughts of suicide and deliberate self-harm with Spearman correlation coefficient $Z = 11.66$, $p = 0.0001$.

Depression

For males the mean depressed subscale score for those preferring pop was 10.67 ± 5.40 and for those preferring rock/metal 13.01 ± 7.41 , unpaired t test = 1.72, $p = 0.09$ (two-tailed).

For females the difference was striking with the mean for those preferring pop being 19.42 ± 10.09 and for those preferring rock/metal 26.85 ± 12.17 , unpaired t test = 3.12, $p = 0.002$ (two-tailed), suggesting that as a group the females preferring rock/metal were more depressed.

Nineteen students (8.4%) scored more than 2 SD above the mean on the depressed subscale, the cut-off suggested by Achenbach for definition of a case. Seven of seven depressed males and 7 of 12 depressed females preferred rock/metal. We have no way of knowing whether these 12 female and seven male students had been diagnosed clinically as having depression according to *DSM-III-R* criteria, nor whether they were currently in therapy.

Delinquency

Both males and females preferring rock/metal scored higher on this YSR subscale. For males the mean for rock/metal was 13.48 ± 8.08 and for pop 8.08 ± 6.54 , unpaired t test = 3.55, $p < 0.001$ (two-tailed). Similarly for females the mean subscale score for rock/metal was 12.00 ± 5.87 and for pop 8.26 ± 6.51 , unpaired t test = 2.63, $p < 0.01$ (two-tailed).

Risk Taking

There is a high Pearson product-moment correlation between scores on the Adolescent Risk Taking Scale and the YSR delinquent subscale. In the present study this was $r = 0.68$, covariance 22.68. As one might expect, therefore, given the differences between music preference groups on the delinquent subscale reported above, both for males and females there was a significant difference between the two music preference groups.

For males the mean for rock/metal was 14.98 ± 4.52 and for pop 12.17 ± 4.63 , unpaired t test = 3.12, $p < 0.005$ (two-tailed). Similarly for females the mean score for rock/metal was 14.93 ± 3.47 and for pop 12.21 ± 4.15 , unpaired t test = 3.04, $p < 0.005$ (two-tailed).

Drugs

A further indicator of individual vulnerability relates to drug intake. Overall, those who preferred rock/metal took significantly more alcohol, tobacco, and marijuana, although both rock/metal and pop as groups were shown to take equal amounts of sedatives and analgesics. As previously noted, the drug-taking scale consists of a 0 to 3 scale for each of the 10 groups of items, giving a combined possible total of 30. The scale has a positive skew with an overall mean in this study of 7.4 and a mode of 6. Profiles are very similar for both males and females.

For males the mean for rock/metal was 8.44 ± 5.13 and for pop 5.49 ± 4.57 , unpaired t test = 2.96, $p < 0.005$ (two-tailed). Similarly for females the mean score for rock/metal was 9.37 ± 3.77 and for pop 6.87 ± 4.93 , unpaired t test = 2.40, $p < 0.02$ (two-tailed).

Listening to the Music

First, there was no reported difference between groups or between sexes for what mood they had to be in to listen. Both rock/metal and pop groups stated they listened to their preferred music equally when happy or sad.

Similar percentages for both groups felt "often happy" (pop 62.8%, rock/metal 58.0%) or "often sad" (pop 8.3%, rock/metal 11.2%) as a result of listening to the music.

We had postulated that feeling sad might lead to listening to more angry or outraged music, and that rock/metal, because of the style of music or some of the lyrics, might lead to more sadness. This was not proved in this study.

However, of interest, those who claimed to feel sometimes or often sadder after listening to rock/metal (total 33.3%) tended to have significantly higher "depressed" subscale scores (Scheffé post hoc comparisons for both

males and females significant at the 0.05 level). The "sadder" group contained nine of 14 "depressed" rock/metal preferring adolescents. The "sadder" group also had higher "delinquency" subscale scores and higher drug scores (both Scheffé post hoc comparisons significant at the 0.05 level). They were also significantly more likely to have suicidal thoughts (66.7% as opposed to 27.8% of those "not sadder," $\chi^2 = 15.03$, $df = 1$, $p < 0.0001$) and have harmed themselves in the past (58.3% as opposed to 19.4% of those "not sadder," $\chi^2 = 16.57$, $df = 1$, $p < 0.0001$).

Finally to the message in the music. The young people admitted that rock/metal music did contain increased messages to do with drugs, violence, suicide, death, war, and the devil, and fewer messages about love, happiness, and the environment. However, only 33% frequently agreed with the messages, and 14.6% stated they never agreed with the messages. These percentages were very similar to those preferring and commenting on pop music.

Discussion

There are problems with this preliminary study. It is a simple cross-sectional design with a large number of variables being considered. In addition criticism may be leveled at the questions. The question on suicidal thoughts does not clarify whether these are infrequent or persistent and severe within the previous 6 months. The question on deliberate self-harm is a complex one, and although a case can be made for it including suicide attempts, it does not explore the number of attempts nor their lethality. In addition, neither question gives information on planning without actual attempt. The use of a more formal suicide scale (for instance, the Spectrum of Suicide Behaviour Scale, Pfeffer et al., 1986) would allow us to explore the spectrum of suicide more clearly and to have more confidence in the findings.

Similarly, there are problems with assuming that the depressed subscale of the YSR actually measures clinical depression, despite the stringent criteria suggested by Achenbach for "caseness," and the correlations with *DSM-III-R* criteria (Achenbach, personal communication). Again, the use of a more formal depression scale (for instance, The Children's Depression Inventory, Kovacs, 1981) would allow us to have more confidence in the results.

Such criticisms also may be leveled at the oversimplified question on family closeness, despite its face validity and the apparent relationship with the Family Assessment Device and the Parental Binding Instrument and several other indicators of family dynamics. Furthermore, the demographic questions about parents and the family were limited in this study. However, previous experience with lengthy detailed questionnaires and adolescents had shown us that the longer the questionnaire, the greater the number of spoiled returns. Given that this was a preliminary study, the decision was made to limit the questionnaire to the briefest possible that would still give us a broad amount of information.

Despite the valid criticisms, we believe the findings demonstrate there are associations between rock/metal music and depression, delinquency, risk-taking and drug-taking behaviors, suicidal thinking, and deliberate self-harm. There

are also associations with parental status and closeness of the family. This was all particularly true for females.

There seems little doubt that listening to rock/metal music has a strong gender bias. We would postulate that males see it as desirable to identify with a group of peers who prefer rock/heavy metal. It may be that males identify more with the musicians, the messages in the music, and the aggressive way the music is played. It is of note that 94% of the membership of rock/metal music groups consists of males between the ages of 25 and 39 (Sherman and Dominick, 1986) predominantly dressed in rough garb often fashioned from leather. They wear icons and have tattoos that often indicate the violent and sexual themes of the lyrics.

It seems that the majority of young females find rock/heavy metal music unacceptable. When females do prefer rock/heavy metal they appear to us within the limits of this preliminary study to be more disturbed as a group claiming more suicidal thoughts and acts, scoring as significantly more depressed and delinquent, and coming from more difficult families.

The influence of rock/heavy metal music is not a simple cause-and-effect relationship. Although it is tempting to suggest that such music played loudly might lead to parental discord and possible separation, in reality this is unlikely. Rather, it appears to us that a group of young people with preexisting personal and family psychopathology may seek out rock/metal because either the style or the themes and lyrics resonate with their own feelings of frustration, rage, and despair. A large percentage of these young people feel happier having listened to the music. However, 11% of the students claimed to feel sadder after listening to rock/metal music. We would postulate that it may be these young people who are most vulnerable to acting out the lyrics or themes from the music.

We believe that like depression, suicidal thoughts, deliberate self-harm, risk taking, drug and alcohol abuse, and family psychopathology, a preference for rock/heavy metal music particularly among young females may be an indicator for vulnerability. In addition, the experience of feeling worse after listening to music, whatever the type, may be an important indicator for vulnerability. Replication of these findings, with the more formal instruments referred to earlier, is needed to confirm that music preference and psychological vulnerabilities co-occur to some degree. In addition, it is likely that music preference, personal circumstances, and feelings all change over time. A prospective, repeated measures design would be able to show whether music preference, particularly a sustained preference for rock/heavy metal, has any predictive power. If additional studies do support the present conclusions, we may be one step nearer the prediction of vulnerability to at-risk behaviors including teenage suicide.

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From Pediatrics

Health Insurance Coverage of Adolescents: A Current Profile and Assessment of Trends. Paul W. Newacheck, Dr.P.H., Margaret A. McManus, M.H.S., and Joann Gephart, M.S.N., R.N.

Abstract. Data from the National Health Interview Survey reveal that 4.7 million or 15% of US adolescents aged 10 through 18 were uninsured in 1989. Among adolescents, 73% were privately insured, 10% were publicly insured, and 2% were both privately and publicly insured. Poor, near-poor, and minority adolescents were at the greatest risk for lack of health insurance coverage. Among adolescents without insurance, cost continued to be cited as the leading barrier to obtaining coverage. A comparison of 1989 National Health Interview Survey data with a previous analysis, in which 1984 data were used, revealed a 10% increase in the proportion of adolescents without insurance coverage. The increase in the proportion of uninsured adolescents was entirely attributable to an erosion of private health insurance coverage. No significant change occurred in the proportion of adolescents with coverage under public programs. Planned expansions of the federally and state-financed Medicaid programs will help to stem further increases in the size of the uninsured adolescent population. However, unless marked improvements occur in the private health insurance sector, progress will be limited. *Pediatrics* 1992;90:589-596.