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ABSTRACT

Adolescence is characterized by a set of dramatic physical, cognitive, and psychological changes which affect the developmental process in many ways. This study sought to develop and test the adequacy of a theoretical model of adolescent worry and to determine whether there is a relationship between adolescent demographic characteristics and the proposed model of adolescent worry. Subjects (N=605) were adolescents from two distinct regions. The first included adolescents (N=427) from a southern United States urban housing project and the second group of adolescents (N=178) were students from a high school and an intermediate school in the western United States. The Adolescent Health Survey which assesses the degree of worry adolescents may have was used; demographic data was collected. The results indicated that younger adolescents were more worried about issues related to personal and family situations in comparison to older youth. Also the female adolescents expressed significantly greater concern about their peer and family situations than did the male participants. Furthermore, the findings revealed that the Black youth surveyed expressed fewer worries about their peer and personal issues than did the Asian, Hawaiian, Native American, and White Adolescents. Collectively, these findings suggest that it may be an oversimplification to conceptualize adolescent worries within four primary domains without acknowledging the complex interaction between the unique personal characteristics of youth and the types of issues with which they are likely to be most concerned. (Contains 30 references and 4 tables.) (ABL)

Testing A Theoretical Model of Adolescent Worries

by

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Abstract

The investigators studied the different types of worries in which adolescents were concerned according to their gender, age, family composition and racial background.

Testing A Theoretical Model of Adolescent Worries

Adolescence is characterized by a set of dramatic physical, cognitive, and psychological changes which affect the developmental process in many ways. Typically, these changes catalyze significant modifications in the way teenagers think about themselves, their peers, family, and the world at-large. As a result, they begin to demonstrate a host of new interests and concerns. Theorists in the field of adolescent psychology agree that these new concerns are primarily directed towards four major domains. These include being concerned with a variety of personal, peer, family, and social issues (Craig, 1989; Dacey & Travers, 1991; Sigelman & Shaffer, 1991; Sprinthall & Collins, 1984).

Recently, a number of researchers have begun probing this realm of adolescent psychology in greater depth, noting numerous implications for educational and counseling practice (Gillies, 1989; Hamilton, van Mouwerik, Oetting, Beauvais, & Keilin, 1988; Pautler & Lewko, 1984; Robinson, Rotter, Fey, & Robinson, 1991; Robinson, Robinson, & Whetsell, 1988). While most of these investigations report on the types of individual worries, fears, and/or concerns teenagers experience in contemporary society, few examine whether these worries can, in fact, be grouped into the four theoretical domains (e.g., personal, peers, social, family) which most experts identify as major determinants for adolescent development.

This investigation is designed to serve a two-fold purpose. First, it examines a number of variables that underlie the personal, peer, family, and social concerns of youth by testing a four-factor model of adolescent worries. Second, the researchers explore the ways in which demographic characteristics of teenagers (e.g., gender, age, racial/ethnic background) affect their "worry patterns."

Developing A Theoretical Model

A review of the literature on adolescent worry suggests four main domains of concern. These include events that are personal in nature (Doctor, Goldenring, & Powell, 1987; Orton, 1982; Simon & Ward, 1974); social issues such as violence in the neighborhood and country, poverty, drugs and drinking, and nuclear war (Breakwell, Fife-Schaw, & Devereux, 1988, Doctor et al., 1987; Orton, 1982); peer relationships (Hamilton, van Mouwerik, Otting, Beauvais, & Keilin, 1988; Orton, 1982), and family-related issues and situations (Breakwell et al., 1988; Orton, 1982; Simon & Ward, 1974).

Two factors that have a major impact on the type of personal issues adolescents concern themselves with are related directly or indirectly to physical and cognitive changes that normally accompany this developmental stage. For example, some of adolescents' personal concerns center around issues related to whether their bodies are developing in a normal way, their sexual identities, getting pregnant,

or getting someone pregnant.

Development of thought processes also occur during adolescence. The emergence of formal operational thought is also characterized by the ability to analyze one's own cognitions and think about one's life experiences in more abstract terms (Piaget, 1972). In this regard, teenagers begin "thinking about their own thinking" with more regularity and in greater depth than at any preceding time in their development.

Other personal concerns, such as worrying about getting a job when they get older or being concerned about being unfairly treated because of one's race, also predictably to appear during adolescence as teenagers gain increased reflective capacities. Thus, it is not uncommon for many teenagers to experience an increased personal concern about what other people might think if they did not do well in school, if their parents were to get a divorce, or if they were wearing the "wrong" kind of clothes.

While the increased cognitive capacities mentioned above clearly impact the worries of youth, much of the substance of teenagers' social concerns is heavily influenced by the historical epoch in which they live. Craig (1989) accurately notes that "there have been groups of late adolescents who have taken on the role of the conscience of society" (p. 404) at all points in our nation's history. Evidence for this statement is reflected by the involvement of young persons in the civil rights,

anti-war, and feminist movements as well as in the current mobilization of an international environmental crusade.

A number of researchers suggest that an upsurge in concern for social issues during adolescence coincides with changes teenagers undergo in terms of their level of moral development. Based upon his longitudinal studies, Kohlberg (1980) concludes that youth typically undergo advancements in moral development as a result of exercising formal operational thought by testing hypotheses, reevaluating information, and reformulating previously held concepts. The emergence of this sort of maturing moral perspective is frequently accompanied with a new set of worries and concerns about various social conditions and phenomena (Hoffman, 1980).

During adolescence, the importance of making friends and being accepted by one's peers increases enormously. Young adolescents usually demonstrate a strong need to be liked and feel strong pressures to conform to the expectations of peer group. Several theorists point out that these needs go hand in hand with the adolescent's preoccupation with his/her personal appearance and reputation (Dacey & Travers, 1991; Loevinger, 1976; Sigelman & Shaffer, 1991; Sprinthall & Collins, 1984). Loevinger (1976) describes these concerns as being a function of various psychological changes that are associated with normal personality development or identity formation. Consequently, the typical teenager is likely to express

worries about such things as his/her looks, being liked by others, and losing a good friend at various times during adolescence.

Developmental theorists also agree that a critical task during adolescence is to achieve a sense of autonomy from parents. It has also been assumed that achieving such autonomy means that teenagers will undergo a major psychological separation from their family during adolescence (Sigelman & Shaffer, 1991). Much of the current research in the area of adolescent development, however, tends to challenge this earlier-held view, suggesting that another important aspect of the teenage years includes having youth maintain a close attachment with their families even as they explore their own personal autonomy (Grotevant & Cooper, 1986; Youniss & Smollar, 1985).

There are a number of important issues that extend beyond the traditionally held view about the generation gap between adolescents and their parents and the underlying tension and antagonism which it is frequently thought to generate. For example, Offer, Ostrov, and Howard (1981) report that most of the teenagers they studied described their family relationships as harmonious and supportive.

Other investigators point out that, while most adolescents stop seeing their parents as all-knowing and all-powerful persons, they continue to maintain a genuine sense of respect and concern for them. Commenting on the concern and interest most teenagers exhibit towards their

families in general, and parents in particular, Youniss and Smollar (1985) suggest that "the bond to parents is not severed so much as it is more likely transformed during adolescence" (p.92).

The notion that youth maintain a strong bond with their families during adolescents is not new. For more than fifty years, researchers investigating teenagers' attitudes about their parents and families have confirmed that the family domain represents a major source of worry and concern for most adolescents (Elder, 1963; Jersild, Goldman, & Loftus, 1941; Kohn, 1959; Konopka, 1973; McNally, 1951; Pinter & Lev, 1940)

Although most theorists in the area of adolescent psychology agree that the four domains mentioned above (personal, social, peers, and the family) comprise major areas of concern for youth, few studies have been conducted to test whether an empirically-based model of adolescent worries exists that encompasses these specific domains. A second area which calls for more formal investigation involves the potential determinants of adolescent worries and concerns. In this regard, little research has been directed to determine whether an adolescent's gender, racial/ethnic background, age, and family composition significantly influence the type of concerns and worries s/he is preoccupied.

With these research needs in mind, the investigators sought to examine two main questions in the current study.

First, can a theoretical model suggesting that there are four fundamental domains in which youth direct their concerns (e.g., personal, social, peer, and family domains) be validated empirically? Second, do the personal characteristics of youth (e.g., age, gender, racial/ethnic background, and parental status) affect their concerns?

Methods

Subjects

The subjects were 605 adolescents residing in two distinct regions of the United States. The first group of adolescents (N=427) was drawn at random from a population of adolescents living in an urban housing project in a large city in the southern United States. This group consisted primarily of Black youth. The socioeconomic status of these students was primarily low.

The second group (N=178) was drawn at random from two populations of students, one in a high school and the other in an intermediate school in the far western United States. These adolescents were primarily Asian, Caucasian, and Hawaiian. The socioeconomic status of these students was low to middle class.

In summary, the sample used in this investigation should be termed as "purposeful" (Kruskal & Mosteller, 1979), as not all segments of it could be drawn completely at random. Furthermore, noting that past investigations of

adolescent worries have been dominated by a primarily White, middle class sample-base, the researchers deliberately attempted to include a more ethnically and racially diverse sample in this study.

In all cases, adolescents were asked to volunteer for a study on adolescent health, and in no case did any subject decline to participate in the study. Data on the demographic variables used as predictors of youth worries for the complete sample were as follows:

(1) Ethnicity: Black, 60%; Asian, 18%; Caucasian, 14%; Hawaiian, 7%; American Indian, 2%;

(2) Phase: early adolescence (10-13 years) 48%, middle adolescence (14-16 years) 39%, late adolescence (17-19 years) 13%;

(3) Gender: Female 45%; Male 55%;

(4) Family Background: Married, 27%; Divorced, 16%; Separated, 17%; Never Married, 31%; One or Both Parents Deceased, 5%, Other, 4%.

Instrumentation

The Adolescent Health Survey (Adolescent Health Program, 1987) is a self-administered questionnaire consisting of 148 items which provide an assessment of adolescent health conditions. The questions used for this study comprise the section in the instrument that is specifically designed to evaluate the types of things with which youth are concerned.

To assess the degree of worry adolescents may have about the various issues listed in this section, subjects are asked, "For each question tell how much you worry about...." The 28 items are presented in Likert-scale format with responses ranging from 1 (never) to 5 (always). An additional section on demographic variables such as age, gender, ethnicity, and questions relating to family background was also used. Each subject took about 20 minutes to complete the instrument.

Data Analytic Procedures

It is quite likely that there are underlying constructs or dimensions (factors) that explain the pattern of relationships among the observed variables in the questionnaire. To test this hypothesis, a confirmatory factor analysis (using the LISREL analytic paradigm) was first performed. Two goals drove this factor analysis: to confirm the minimum number of latent (unobserved) dimensions needed to reproduce the variance/covariance among observed variables; and to verify the meaning (i.e., names) attached to these latent dimensions. This procedure would provide an empirical test of the theory that adolescent worry is a construct made up of four separate dimensions as suggested in the professional literature (e.g., Craig, 1989; Darcey & Travers, 1991).

In contrast to the exploratory factor analysis, which uses only mathematical criteria to create factor models,

confirmatory factor analysis allows the researcher to generate factor models that are theory driven (Heck, Larsen, & Marcoulides, 1990). That is, theoretically motivated constraints regarding the underlying dimensions in the model are imposed before the model is tested with the actual data. Since latent (unmeasured, hypothetically-existing) variables cannot be observed, they cannot be directly measured.

Researchers must indirectly describe each latent construct in terms of a specifically-identified set of observed variables. These constraints imposed before the model is tested, therefore, take into consideration which observed variables will be affected by which latent variable, which pairs of latent variables are to be correlated, how the observed variables are affected by the unique factors (the residual error), and whether specific unique factors are to be correlated. Statistical tests can then be performed to determine if the sample data "confirm" the hypothesized model.

The first purpose of the study was to develop and test the adequacy of a theoretical model of adolescent worry In practice, the researcher may not have one model in mind, but rather, a series of competing models, or a model that is being developed. Confirmatory factor analysis can therefore be used to determine which of a variety of models may best reproduce the underlying dimensions or subtleties in the data.

The second objective of the study was to determine

whether there is a relationship between adolescent demographic characteristics (e.g., race/ethnicity, gender, phase of development, and family background) and the investigators' proposed model of adolescent worry. This relationship was studied by using a multivariate analysis of variance (MANOVA), which tests the simultaneous effects of one or more predictors on several dependent variables of interest (in this case, the proposed factor model of worry). Such analyses provide sounder results by reducing the possibility of Type I errors which often accompany the univariate analyses of a multidimensional construct (Tatsuoka & Silver, 1988) such as adolescent worry.

Results

The results of the study are aggregated into four tables. Table 1 provides descriptive statistics about adolescent worries for the observed variables included in our theoretical model of adolescent worry. The observed variables described in Table 1 are paraphrased from the original questionnaire and grouped according to the latent constructs they are hypothesized to measure.

An overview of the data presented in Table 1 suggests as a whole group, adolescents worry most about a parent dying ($X = 3.80$), people in our country who are hungry and poor ($X = 3.45$), doing well in school ($X = 3.36$), and getting AIDS ($X = 3.34$). Most of the worries, however, fall

below the midpoint on the scale (3.0), yet the standard deviations for most items in the questionnaire are relatively large. This may indicate that some subgroups of the population worry more or less about each particular issue or groups of issues.

Please Insert Table 1

About Here

Verifying the Dimensions of Adolescent Worry

The analysis of the proposed model of adolescent worry was conducted by specifying certain parameters in the model as fixed or free using Joreskog and Sorbom's (1984) LISREL VI computer routine. The maximum likelihood (ML) fitting function was used, because of the variety of tests of overall model fit that are available.

Table 2 displays the confirmatory factor analytic parameter estimates for the proposed model. Parameter estimates are indices that represent the simultaneous contribution of each observed and latent variable to the overall model. As indicated in the table, the results of the confirmatory factor analysis generally support the proposed mode. The resulting estimates are both significant in a statistical sense and substantial in a quantitative sense. Specifically, all loadings in Table 2 were highly significant ($p < .01$) with t-ratios (the parameter estimate

divided by its standard error) ranging between 6.3 and 20.5 (1.96 is required for significance).

Please Insert Table 2

About Here

The adequacy of the model in describing the variability in the data must also be considered. The assessment of the goodness-of-fit of the overall model may be determined from the various indices included in Table 3. These indices include the coefficient of determination (COD), the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), and the root mean square (RMS) residual. The COD is basically a reliability index for the measurement model which indicates how well the observed variables serve as joint instruments to measure the latent constructs (Heck et al, 1990). The GFI indicates the relative amount of variance and covariance jointly explained by the model. AGFI is similar to the GFI, except it adjusts for the number of degrees of freedom in the model.

Please Insert Table 3

About Here

Although the exact distributions of these first three indices are unknown, it is generally agreed that values close to .9 indicate a good fit of the model to the data.

The COD in the tested model is .83, indicating an adequate fit of the observed variables to the latent constructs. The GFI in the present model is .975, indicating a strong fit of the model to the data. Similarly, the AGFI is also adequate (.856).

On the other hand, RMS is the average of the variances and covariances left unexplained by the model. With a good fit of the model to the data, this index should be close to zero. The value of the index was .057, indicating that few of the variances and covariances were left unexplained by the model. A final measure of model fit is the ratio of chi-square to the degrees of freedom (e.g., a ratio between 2 and 5 is commonly accepted as evidence of a good-fitting model). For this model the resulting ratio was 2.5.

Together, these indices suggest that the model fairly accurately accounts for the variability observed in the data. Although we could obtain higher fitting models (e.g., by correlating residual error terms between observed variables), the results might make little sense theoretically. Therefore, we presented results based only on the model we originally hypothesized.

Demographic Determinants of Adolescent Worry

The second part of the analysis focused on the potential relationship between various personal characteristics of the adolescents and the confirmed theoretical model. Cronbach's alphas were computed for each

of the four latent dimensions of adolescent worry. The resulting coefficients were .85 for personal concerns, .82 for social worries, .74 for peer-related concerns, and .75 for family issues. All internal consistency coefficients wee judged to be sufficient for purposes of analyzing the effects of demographic variables on the proposed model.

A mean score was computed for the subjects on each of the four domains of adolescent worry. Multiple analysis of variance (MANOVA) were then performed between a set of demographic predictors and the four dimensions of worry simultaneously to determine if there was a significant relationship between the two sets of variables. Evaluation of the homogeneity of the variance-covariance matrices (using Box's M) indicated no threat to the multivariate analysis.

As this was exploratory research, the investigators first assessed the main effects of each predictor then tested for interactive effects among the predictors. Two tests of significance were computed (Pillais and Wilks). The results of this analysis are presented in Table 4.

Please Insert Table 4

About Here

As presented in Table 4, there was a significant main effect for phase ($p < .001$), gender ($p < .05$), and ethnicity ($p < .001$). Family background, however, was not

significantly related to the four factors of worry ($F = 1.33$, $p > .05$). Further investigation indicated that there were no interactive effects between combinations of the significant predictor variables ($p > .05$). Thus, it appears that adolescent worry, as a multidimensional construct is influenced by gender, the adolescent's developmental phase (e.g., early, middle, late adolescence), and ethnicity, but not by interactive effects among these predictors.

Follow-up discriminant function analyses were then conducted on the significant main effect relationships to assess the relative importance of each dimension of adolescent worry in producing the significant finding. This type of analysis is superior to the often reported univariate analyses of each dimension because it controls for correlations between the dependent variables (e.g., personal and social worries) and it does not inflate Type 1 errors (Tatsuoka & Silver, 1988). To assess these relationships, standardized canonical discriminant function coefficients were compared. The magnitude of the coefficient indicates its relative importance in classifying groups (e.g., by gender or ethnicity) after the effects of the other dimensions of adolescent worry are controlled.

This analysis indicated that for subjects' phase of development the significant result was due to differences in perceptions about family issues (1.02) and, to a limited extent, personal issues (.08). For gender, the significant results were attributed to differences in attitudes about

peers (.66) and social concerns (.52). With respect to ethnicity, these differences appear to be related to peer issues (.76) and personal issues (.62).

Discussion

In this study a proposed model of adolescent worry was tested and possible demographic determinants were explored. Several conclusions may be drawn from the findings of this research. First, the researchers were able to confirm empirically a theoretical model that structures various concerns of youth. However, beyond noting how well the empirical findings fit the existing theory base related to the adolescent development, the investigators noted the apparent effects of specific personal characteristics (e.g. age, racial/ethnic background, and gender) on the type of worry domains with which teenagers tend to be concerned.

In this regard, it is noted that younger adolescents were more worried about issues related to personal and family situations in comparison to older youth. Also, the female adolescents participating in this study expressed significantly greater concern about their peer and family situations than did the male participants. Furthermore, the findings reveal that the Black youth surveyed expressed less worries about their peers and personal issues than did the Asian, Hawaiian, Native American, and White adolescents. Collectively, these findings suggest that it may be an

oversimplification to conceptualize adolescent worries within four primary domains without acknowledging the complex interaction between the unique personal characteristics of youth and the types of issues with which they are likely to be most concerned.

Implications for Practitioners

The findings generated from this study have particular relevance for practitioners, policy makers, program planners, and other researchers. First, for practitioners and planners, the results suggest that greater sensitivity needs to be taken regarding the development of programs and services designed to attend to the concerns of youth. From the findings reported above, professionals are encouraged to consider the impact of teenagers' personal characteristics in terms of the things they are likely to worry about as they plan programs and services to address these concerns.

Second, the results of this study generate a host of new questions which need further attention in future research endeavors. For instance, why do younger adolescents focus on a different set of worries than older youth? Why do female youth demonstrate greater concern about social situations and their peers than their male counterparts? What factors contribute to the ethnic differences noted in the findings? Specifically, what variables underlie the observation that Black youth report less concern about their peers and personal issues than

Asian, Hawaiian, Native American, and White youth?

The findings therefore provide practitioners empirical evidence strongly supportive of the notion that the personal characteristics of youth represent important considerations for program development and service delivery. They also present questions that may be used to guide future research efforts designed to enhance our understanding of the complex process and determinants of adolescent development.

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Table 1

Means and Standard Deviations of Adolescent Worries

Specific Worries	Reported Degree of Worry (1.00 = Low degree of worry; 5.00 = Very high degree of worry) Mean (N = 605)	SD
I worry about		
not passing an important test (V1)	3.03	1.34
one of my parents dying (V2)	3.80	1.61
getting AIDS (V3)	3.34	1.72
doing well in school (V4)	3.36	1.61
friends getting me into trouble (V5)	2.89	1.59
dying soon (V6)	2.93	1.73
being unfairly treated because of my race (V7)	2.36	1.58
parents getting divorced (V8)	2.23	1.61
getting pregnant or getting someone pregnant (V9)	2.96	1.67
if my body is developing in a normal way (V10)	3.06	1.57
getting a good job when I am older (V11)	2.92	1.57
all the violence happening in our country (V12)	3.09	1.53
all the violence happening in my neighborhood (V13)	2.87	1.53
people who are hungry and poor in our country (V14)	3.45	1.45

(Table 1 continued)

the economic conditions where I live (V15)	2.51	1.49
all the drugs and drinking going on around me (V16)	2.98	1.60
a nuclear bomb being dropped on America (V17)	2.92	1.69
how my friends treat me (V18)	2.47	1.54
how well other kids like me (V19)	2.66	1.53
my looks (V20)	2.78	1.61
losing my best friend (V21)	2.98	1.65
getting beat up in school (V22)	1.90	1.41
how much my mother and/or father drinks (alcohol) (V23)	2.12	1.57
how much my mother and/or father uses drugs (V24)	1.75	1.41
all the violence happening in my home (V25)	2.67	1.62
someone might force me to do sexual things I do not want to do (V26)	2.12	1.57
one of my parents hitting me so hard I may get hurt (V27)	2.28	1.61
my family not having enough money to get by (V28)	3.01	1.62

Table 2
Parameter Estimates of Variables Included in the Model of Adolescent Worries

Variable	Personal (N=605)	Social	Peers	Family
Important test (V1)	.59			
Parents dying (V2)	.54			
Getting Aids (V3)	.66			
Doing well in school (V4)	.53			
Getting in trouble (V5)	.59			
Dying soon (V6)	.61			
Unfairly treated (V7)	.63			
Parents divorcing (V8)	.54			
Pregnancy (V9)	.68			
Physical development (V10)	.66			
Getting a good job (V11)	.45			
Country's violence (V12)		.67		
Neighborhood violence (V13)		.57		
The hungry and poor (V14)		.56		
Economic conditions (V15)		.70		
Drugs and drinking (V16)		.58		
Nuclear bombs (V17)		.61		
How friends treat me (V18)			.42	
How kids like me (V19)			.40	
My looks (V20)			.57	
Losing best friend (V21)			.67	
Beat up in school (V22)				.61
Parents drinking (V23)				.39
Parents using drugs (V24)				.31
Violence at home (V25)				.73
Forced sex (V26)				.46
Parents hitting me (V27)				.69
Family lacking money (V28)				.76

Table 3
Indices of Model Fit

Coefficient of Determination (COD)	.833
Goodness-of-Fit Index (GFI)	.975
Adjusted Goodness-of-Fit Index (AGFI)	.856
Root Mean Square (RMS) Residual	.057

Table 4
MANOVA Analysis of Determinants of Adolescent Worries

	Pillais	(F ratio)	Wilks	(F ratio)	p
Main Effects					
Phase	.07	4.89	.93	5.09	.000
Ethnicity	.16	4.68	.83	4.90	.000
Gender	.02	2.63	.98	2.63	.033
Family Background	.03	1.32	.95	1.33	.196
Interactions*					
Phase, Ethnicity	.07	.96	.93	.96	.544
Ethnicity, Gender	.04	1.11	.96	1.11	.328
Gender, Phase	.01	.58	.99	.58	.795
Gender, Phase, Ethnicity	.05	1.07	.95	1.07	.370

* Note: Only interactions of the significant main effects are reported. All interactions were nonsignificant ($p > .05$).