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Mood Variability and the Psychosocial Adjustment of Adolescents

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This research uses a new time sampling method to compare adolescent and adult mood variability. Over 9000 self-reports from 182 people are used to evaluate the widespread theoretical assumption that adolescents experience greater mood variability as part of a syndrome of psychosocial disequilibrium. The findings confirm that adolescents experience wider and quicker mood swings, but do not show that this variability is related to stress, lack of personal control, psychological maladjustment, or social maladjustment within individual teenagers. Rather than representing turmoil, wide mood swings appear to be a natural part of an adolescent peer-oriented life style. However, there are indications that adolescent mood variability interferes with capacity for deep involvement, especially in school.

INTRODUCTION

Moodiness has long been considered one of the distinguishing characteristics of adolescents. Numerous writers have suggested that adolescents are prone to wide, frequent, and unpredictable fluctuations in emotional state

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(e.g., Hall, 1904; Freud, 1937; Blos, 1961). This variability has often been pictured as a pathic response to the overwhelming internal and external pressures associated with this stage of life. Hence terms such as "storm and stress," "crisis," and "turmoil," connoting uncontrollable mood swings, have been used in reference to this variability of adolescents. However, the strong connotations of these terms have not been substantiated. In fact, the belief that teenagers' moods are more variable than those of adults has not been systematically tested.

A major problem with evaluating adolescent variability is the difficulty in operationalizing "moods." How does one objectify what is quintessentially subjective? Moods refer to emotional shifts in an individual's personal orientation to the world (Wessman and Ricks, 1966). The emotional states a teenager goes through in a day may include deeply subjective feelings of love and religious fervor. Thus, it is unfortunate that assessments of adolescents' moods have relied solely on judgments by outside observers. To make matters worse, these assessments typically have involved indirect observations made on emotionally disturbed adolescents without reference to comparison samples of children or adults.

In this study we used adolescents' own impression of their moods, gathered in a systematic way. A newly developed time sampling procedure has been employed to obtain self-reports during daily experience. Hence, we are in a position to evaluate direct descriptions of adolescents' moods as they naturally occur.

The procedure employed is called the Experience Sampling Method (Csikszentmihalyi *et al.*, 1977). Adolescents and adults in this research carried electronic pagers during a normal week in their lives. Signals sent to the pagers cued them to fill out self-reports at random times during this period. Over a week each person provided 35–70 self-reports on their typical emotional states. These reports and concomitant data provide the basis for this investigation.

ADOLESCENT VARIABILITY AND THE DISEQUILIBRIUM MODEL

The reputation of teenagers for moodiness is widespread and recognized by laymen as well as by psychiatrists and academicians. Adults interviewed by Hess and Goldblatt (1957) and Musgrove (1963) used such words as "impulsive," "inconsistent," and even "wild" to describe "the average teenager." This reputation extends back at least as far as Aristotle, who stated that "the young are heated by Nature as drunken men by wine" (quoted by Fox, 1977).

Scholars of the current century have given deeper and more pathic significance to the predicament faced by adolescents. It is claimed that teenagers must accommodate sudden increases in biological drive (Hall, 1904; Freud, 1937), struggle for personal identity and autonomy from family (Erikson, 1968; Blos, 1961), cope with marginal social status (Lewin, 1938), and, in Western

society, confront fundamental developmental discontinuities (Benedict, 1938) and cultural contradictions (Mead, 1928). To make matters worse, they must face these exigencies with weak defenses and immature coping mechanisms (Freud, 1937; 1958; Vaillant, 1977). Anna Freud, Lewin (1938), and others invoke a disease metaphor to describe the dynamics of adolescent mood variability, which is seen to be part of a syndrome of unmanageable conflict and stress leading to internal disorder and social maladjustment. Variability represents personal imbalance or disequilibrium.

It is this disequilibrium model of adolescent variability that we attempt to test in this paper. First, we evaluate the initial assumption that adolescents as a group are more variable than adults. Then, we consider whether adolescent variability is correlated with indicators of personal disequilibrium, including indices of stress, subjective control, psychological maladjustment, and social maladjustment. In these analyses three facets of variability are employed, each based on daily self-reports. One is the extremity of a person's moods, "degree of mood variation." The second is the instability of a person's moods, "mood changeability." The third is the lack of consistency of a person's moods measured in the same situation at different times, "situational independence." We use time sampling data to examine the significance of mood variability in adolescents' lives.

METHOD

The data for adolescents and adults used in this report come from two similar studies. In both the Experience Sampling Method was used to obtain a systematic sample of self-reports from people's ongoing daily experience.

The study of adolescents was done in a large suburban Chicago high school. The 75 students live in an old well-established community containing a broad mixture of cultural groups. The sample includes equal numbers from upper and lower middle class residential areas, equal numbers of boys and girls, and equal numbers from all four high school grades. It represents 54% of the randomly selected students initially invited to participate in the research.

The 107 people in the adult sample are volunteers from five Chicago area businesses. They include secretaries, assembly line workers, railroad workers, managers, and engineers ranging in age from 19–65. Half of the 40 men and 67 women are married.

In both studies participants carried electronic pagers and a booklet of identical self-report questionnaires for a week. Radio signals cued them to fill out self-reports at random times in the week. By this means 35-70 self-reports for each person were obtained.

The schedule of signals was designed to sample all a person's waking experience over a week. For the adolescents it extended from 7:30 AM to 10:30

PM on weekdays and 8:00 AM to 1:30 AM on the weekend. Within this time range one signal was sent at a random time within every two-hour block of time. For the adults signals occurred within two-hour blocks between 8:00 AM and 10:00 PM all seven days of the week.

The adolescents responded to 69% of the signals, providing a total of 4489 reports. The adults responded to 80% of the signals, providing a total of 4791 self-reports. Omissions were due to such reasons as mechanical failure, forgetting the pager at home, and turning the pager off to go to bed. In spite of these omissions, we have found the data to provide an accurate representation of people's normal daily experience (Csikszentmihalyi and Graef, 1980; Larson, 1979a).

For each of these 9000 self-reports people described their situation and their subjective state. They responded to questions asking where they were, what they were doing, and who they were with. They also used a series of structured items to rate their emotional and cognitive state at the time of the signal.

This paper is primarily concerned with eight of these mood items. Each presents a pair of adjectives describing opposite negative and positive states. A person is to rate his or her mood along a 7-point gradient between extremes of these states. These eight adjective pairs include three dealing with feelings (irritable-cheerful, sad-happy, and lonely-sociable), four dealing with mental and physical activation (passive-active, drowsy-alert, weak-strong, and bored-excited), and one other (constrained-free). The 7 points are marked: "very," "quite," "somewhat," "neither," . . . "very." Analyses indicate that responses to these items are stable and consistent over a week. The means and standard deviations change little from the beginning to the end of a week of reporting (Larson, 1979a).

These eight items were added to produce a "composite mood" scale. As these items are all intercorrelated in the expected direction ($r = 0.3$ to $r = 0.6$) this scale of total mood is fairly homogeneous. The range of the scale is between −24 (representing the most negative mood) and +24 (representing the most positive possible mood). Analyses in this paper deal with the mean, standard deviation, autocorrelation, and other statistical properties of composite mood.

Other items tap the amount of control a person reports over his or her daily life. They include the questions: "How well were you concentrating?" "How difficult was it to concentrate?" "Do you wish you had been doing something else?" and, most importantly, "Were you in control of your actions?" In addition, we consider the number of stressful events each adolescent has experienced in the past four years. This count was taken from responses to a modified form of the Holmes and Rahe inventory of stressful experiences (Donner, 1981).

Various indicators of psychological and social adjustment were also obtained for the adolescents only. Psychological adjustment measures include average self-reported composite mood, scores on a shortened form of the Loe-

vinger Ego Development Scale (Loevinger and Wessler, 1970), and scores on modified scales of alienation from self and alienation from others (Maddi *et al.*, 1979). Indicators of social adjustment include semester grades, teachers' ratings of intellectual and social involvement in class, a count of the total number of friends mentioned on the self-report forms, and the student's report that he or she has a leadership position in at least one club or organization. While each of these indicators could be questioned, as a group they provide broad coverage of different ways in which an adolescent demonstates psychological and social adjustment.

ILLUSTRATION OF ONE PERSON'S MOOD FLUCTUATIONS

The Experience Sampling Method is unique in the quantity of information it provides on a person's emotional experience. The richness of detail in these reports tells a story of a week in each person's life. Subsequent interviews added explanations for what caused moods to rise and fall. This section presents the idiographic outline of one individual's week in order to illustrate the substance of the nomothetic mood patterns to be analyzed later in the paper.

The example is a young man of 17, a sports star and average student. Figure 1 shows his moods during a week that is neither typical nor atypical of those described by other teenagers in the sample.

His week starts out positively. He is in "high spirits" coming home from school on Monday. He is excited to have the pager, and things in general are going well for him. At 6:43 PM he reports having a good time, joking with his sisters. At 8:00 they start watching the Miss America Pageant together, but by this time the novelty of the pager and the excitement of the day have worn off. The pageant turns out to be uninteresting. At 8:40 PM he reports that the inactivity of watching TV has depressed his mood. Later in the evening, a phone conversation with his girl friend revives his spirits.

The next day, Tuesday, starts out low. At 8:40 AM he is taking a shower and worrying about an upcoming meeting with his dean. Unfortunately, we do not find out how that meeting affected him because he did not respond to two signals later in the morning. However, at 2:58 PM that afternoon he is feeling "hyper." He is sneaking out of school and the weather is beautiful. It is May 1; after staying indoors through a record-breaking Chicago winter, he feels great to be outside at last. Later that day we catch him wincing in pain. Playing basketball in the alley he tries to dunk the ball. But he slips on some newspapers, flipping over the garbage can, and banging his arm and knee.

Wednesday the pager finally catches him in class and his mood is low. "It's one of those classes where you just go and listen; there's not much to do." On this day the students try to argue with the teacher, but the teacher's attitude is. "I'm right. Just take it from me." His mood is low, but only until the class is

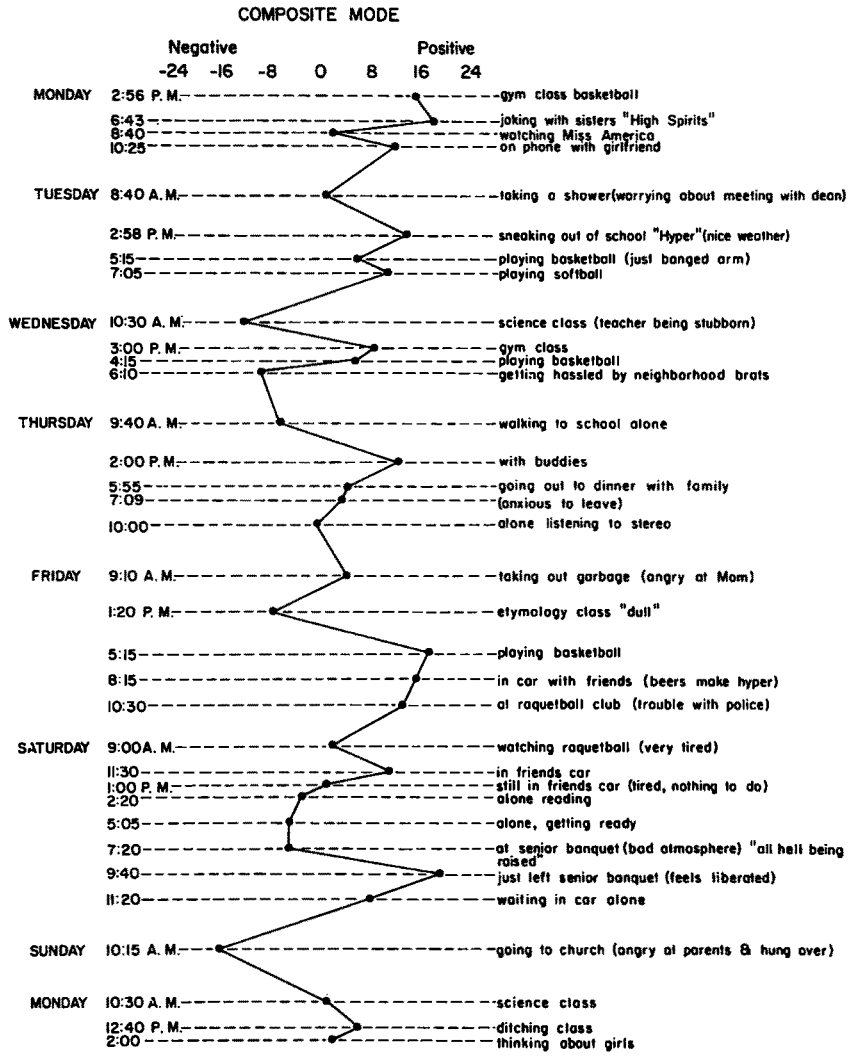

Fig. 1. Explanations for the ups and downs of one person's week. The figure shows the moods reported by a young man during one week in his life, with the explanations he gave for these moods.

over. Later that day he reports low moods again. He is with his sisters on the porch and he is getting hassled by the neighborhood brats, who among other things have spit at him. He says that their mere presence lowers his mood.

The high points come Friday and Saturday night when he is with his friends. They drink beer, drive around a lot, and do what many teenagers call "partying." They have a good time in spite of the difficulties they encounter. On Friday

night they are falsely suspected of stealing some warm-up jackets at the raquetball club and are held by the police for several hours. On Saturday night the school's senior banquet turns into a "bummer" when several students, who came dressed in togas, trigger a food fight, causing the principal and the teachers to overreact with an angry lecture and stern measures. His highest mood on Saturday results from the feeling of freedom he has when he and his friends leave the banquet.

His lowest mood occurs on Sunday morning. The pager catches him with his parents riding to church. This is the description he gave afterwards:

> I never want to go to church, but I'll go. Finally I get a Sunday off; I don't have to work, so I can sleep a little later. But now I've got to go to church. I've got to wake up earlier than if I'd had to go to work.
>
> They always wake you up, and they're always cheerful, and you go "Oh, no!" They act cheerful but they're really hostile – if you don't want to go.
>
> Right then I'd just asked them to turn the channel. They were listening to some opera stuff. They just ignored me; you know, because we were parking and everything. Still they could have acknowledged me. That's why I was so upset. I went, "Jesus Christ, at least they could answer me."

He is also plagued by a hangover from the night before.

This young man's moods do not seem to be caused by inner turmoil or personal disequilibrium. His positive moods reflect vigorous participation in sports. His low moods are reactions to school, the neighborhood brats, being alone, and conflicts with his parents. These ups and downs are integral to the kind of life he experiences. The question is, How similar is he to other adolescents and how dissimilar are these adolescents to adults?

To make these comparisons we consider three statistical properties of each person's moods. Each represents different facets of variability. These properties are illustrated by this young man's week of mood fluctuations. First, one can see that his moods vary substantially between extremes of high and low. This property, *degree of variation,* is represented by the standard deviation of each person's mood. Second, one can see that his moods are very unstable from one report to the next. This property, *changeability,* is represented by the autocorrelation of each person's sequence of moods. Third, one can see that his moods are only weakly predictable by the activity he reports (e.g., sitting in class, playing sports) on each occasion. This property, *situational independence,* is represented by the proportion of variance in each person's mood which is explainable by his or her activity. As a group these three statistical indices are intended to cover the various ways that mood variability are discussed in the literature.

ARE ADOLESCENTS MORE VARIABLE?

The previous section illustrated the properties of one person's week. This section and the next describe how these porperties are shared across people. The

literature suggests that adolescents' moods vary between wider extremes, change more quickly, and are less predictable than those of adults. This section reports how adolescents differ from adults on these three criteria.

Prior to considering variations one needs to consider the middle points in people's mood swings. Overall, the adults' average mood states are significantly above those of the adolescents. Table I shows that this difference is primarily attributable to items dealing with activation. On the average the adults feel more active, more alert, and stronger.

Hence, the adolescents' moods vary over a lower range than those of the adults. It is also worth noting that the adolescents indicate less sense of control over their daily lives. On the average, they report significantly lower concentration, greater difficulty in concentrating, greater wish to be doing something else, and less control of their actions. These differences support the disequilibrium model of adolescence. These teenagers appear to have less grasp on their daily lives than comparable adults. However, the important questions are: Do adolescents' moods vary more? Is this variability related to adolescents' lesser control over their daily lives?

Degree of Mood Variation

All 182 people in the two samples reported some variation between times when they felt better and times when they felt worse. The first comparison deals with the width of this variation, the range between highest and lowest moods.

The data clearly indicate that the adolescents experience wider mood swings. Table I shows the average standard deviations for the two groups. The adolescents report significantly greater variation in their state for seven of the eight individual mood items, as well as for composite mood. This difference is largest for the items excited-bored and free-constrained, which reflect major adolescent issues and are strongly affected by school (Csikszentmihalyi *et al.*, 1977). Yet differences also exist for items such as alert-drowsy and active-passive, which are more simply physiological. Furthermore, even within specific situations, such as being in school and being alone, adolescents show significantly wider mood variation (Larson, 1979b).

It is not yet clear whether this difference involves both the positive and negative end of the mood scale. Since adolescents' average moods are lower, this greater variability may merely represent more frequent moods at the negative end of the scale.

To evaluate this question we tabulated the number of people in both groups who reported experiencing a mood above 16 at least once. Among the 75 teenagers all but 11 (15%) reported an occasion of being in this extreme positive range, whereas 39 of the 107 adults (36%) never reported feeling this good. The difference between the two groups is significant in favor of the adolescents (χ^2 =

Table I. The Average Moods and the Variability of Moods for Adolescents and Adults

Mood items	Average moods (mean means)			Standard deviations (mean SDs)		
	Adolescents (N = 75)	Adults (N = 107)	Difference	Adolescents (N = 75)	Adults (N = 107)	Difference
Feelings (3 to −3)						
Cheerful-irritable	0.80	0.85	0.05	1.35	1.19	−0.16[c]
Happy-sad	1.04	1.05	0.01	1.18	1.07	−0.11[a]
Sociable-lonely	0.97	0.86	−0.11	1.30	1.09	−0.21[d]
Activation (3 to −3)						
Active-passive	0.39	0.79	0.40[d]	1.49	1.24	−0.25[d]
Alert-drowsy	0.92	1.29	0.37[d]	1.62	1.35	−0.27[d]
Strong-weak	0.53	0.79	0.26[c]	1.24	0.96	−0.28[d]
Excited-bored	0.23	0.37	0.14[a]	1.47	0.97	−0.50[d]
Other (3 to −3)						
Free-constrained	0.62	0.70	0.08	1.50	1.13	−0.37[d]
Composite mood (24 to −24)	5.51	6.72	1.21[b]	7.61	5.91	−1.70[d]

[a] $p < 0.10$.
[b] $p < 0.05$
[c] $p < 0.01$.
[d] $p < 0.001$.

10.41, $p < 0.001$). Althought teenagers experience far more negative moods, they also appear to experience more times when their mood is extremely positive. Therefore, their wider mood variation involves being at both extremes more often.

To summarize the differences, Figure 2 shows the distributions of daily moods for a typical adolescent and a typical adult, based on normal distributions. One can see that adolescents make greater use of the ends of the scale to describe their moods. They report fewer moods in the middle; far more often than adults they experience themselves to be at the negative extreme; and somewhat more often than adults they experience the positive extreme. These differences are consonant with Bradburn's (1969) finding that with age people report both fewer negative and fewer positive emotional experiences.

The Changeability of Moods

It is one thing to experience a high mood, it is another thing to have this mood last. The second comparison between adolescents and adults deals with

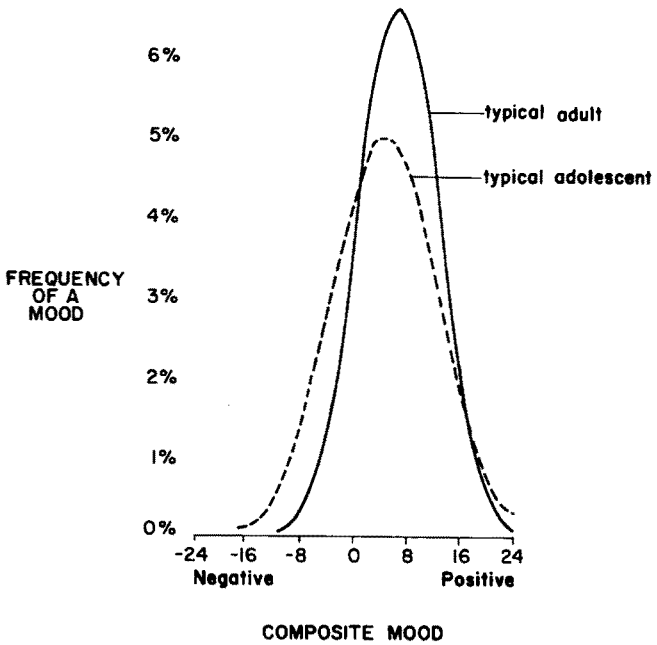

Fig. 2. The graph shows the frequency with which a typical adolescent and a typical adult report different levels of mood. The graph shows fitted normal distributions based on the mean mean and standard deviation for each group.

mood changeability. The question is, How long after reporting an extreme positive or extreme negative mood do adolescents and adults still show traces of that mood?

An extreme mood was defined as one at least half a standard deviation above or below an individual's average composite mood score. To evaluate the stability of these extreme moods, we considered instances when a second self-report had been made within two hours. For control, times the adolescents were in school and times the adults were at work have not been included. Further, by using mood *z* scores, based on each person's mean and standard deviation, individual differences were controlled for. The question is, How long do these extreme moods last?

Figure 3 shows the moods which followed the extreme states. The lines in the figure indicate the attenuation of positive and negative states over a two-hour period. Adolescents' moods disappear more quickly and are much less stable. On the average, adolescents' positive moods diminish by two-thirds within 30 minutes, whereas the adults' positive moods are still at half strength two hours later. A similar, though less dramatic, difference exists for the at-

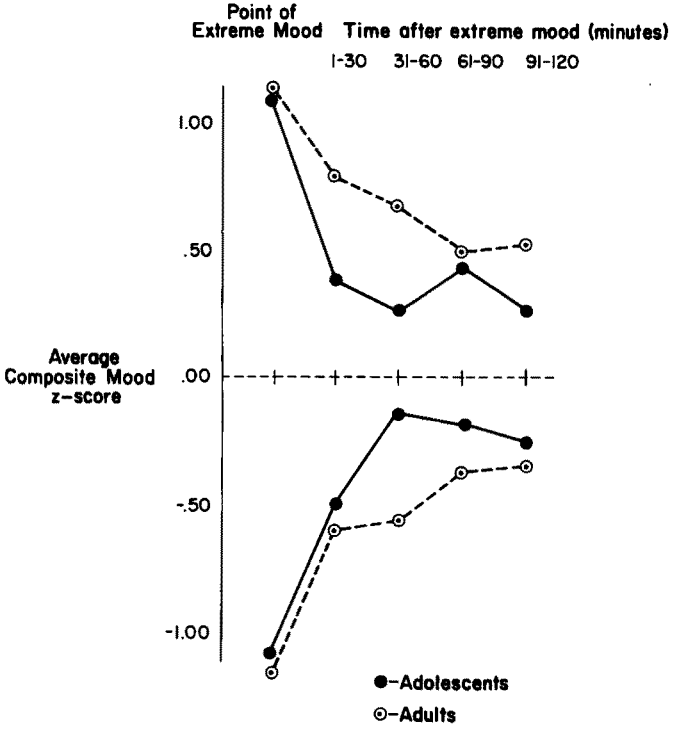

Fig. 3. Moods following an extreme high or low mood.

Table II. Mood Changeability: The Attenuation of Extreme Mood States[a]

	Length of time after extreme mood (minutes)	Adolescents		Adults		Difference: Adults minus adolescents
		Number of reports	Average Mood (z score)	Number of reports	Average mood (z score)	
A. Moods following an extreme positive mood						
Point of extreme mood (total)	0	229	1.08[d]	395	1.12[d]	0.04
Points following extreme mood	1-30	24	0.39[c]	64	0.78[d]	0.39
	31-60	39	0.25[b]	97	0.67[d]	0.42[c]
	61-90	96	0.44[d]	109	0.48[d]	0.04
	91-120	70	0.26[b]	125	0.51[d]	0.25
B. Moods following an extreme negative mood						
Point of extreme mood (total)	0	281	−1.10[d]	407	−1.16[d]	−0.06
Points following extreme mood	1-30	35	−0.51[d]	40	−0.58[d]	−0.07
	31-60	52	−0.16	97	−0.55[d]	−0.39[c]
	61-90	115	−0.19[b]	120	−0.38[d]	−0.19
	91-120	79	−0.27[c]	150	−0.33[d]	−0.06

[a]The table shows reported mood levels within two hours of extreme positive and negative moods. Occurrences of extreme moods are defined as times when people report composite moods above or below their individual means by half a standard deviation or more. All instances when adolescents are at school and when adults are at work have been excluded. Average mood is based on values that have been standardized according to each person's mean and standard deviation. The significance tests evaluate the deviation of the mean from a neutral mood of $z = 0$.

[b]$p < 0.05$.

[c]$p < 0.01$.

[d]$p < 0.001$.

tenuation of negative moods. Like their high emotional states, adolescents' low moods do not last very long. Table II confirms that these differences between adolescents and adults are statistically significant.[4] It is clear that adolescents' moods are more changeable.

Parallel analysis of cognitive and motivational items used in the study indicates that this changeability is not simply emotional. Table III shows that the difference between adolescents and adults in self-reported concentration is even more striking. Thirty minutes after reporting high concentration the teenagers show no significant trace of it, whereas the adults show significantly higher concentration two hours after. Apparently, adolescents rarely concentrate for any length of time. Their concentration, like their mood state, is fleeting.

The Unpredictability of Moods

If adolescents' moods are not consistent from one hour to the next, one might also expect greater inconsistency within standard situations. That is, watching TV on one occasion may elicit a very different mood than on another. The third comparison deals with the situational independence of moods. The expectation is that adolescents' moods are less consistent by situation than those of adults.

This expectation is tested here by considering people's average moods in 13 major categories of activity (e.g., watching TV, doing housework, eating). If a person is consistent, then much of his or her mood variance should be attributable to differences between activities. Analysis of variance was used to determine what percentage of each person's total mood variance is related to these differences.

For the average adolescent, the 13 activities account for 37.0% of total mood variance (mean eta^2). For the average adult, activity accounts for 37.8% of total mood variance. The difference is not statistically significant. Thus, on the whole adolescents' moods are not less predictable than those of adults.

IS MOOD VARIABILITY ASSOCIATED WITH STRESS, LACK OF CONTROL, AND PSYCHOSOCIAL MALADAPTATION?

Many writers claim that teenagers' variability represents psychosocial disequilibrium and is related to adolescents' immaturity and their lack of effective control over their lives. Such variability is also thought to be part and parcel of the more tenuous psychological and social adaptation often referred to under the rubric of "adolescent turmoil."

[4] This difference is also evident in the autocorrelations for the two groups. The adults' moods show higher average autocorrelations over the sequence of the week.

Table III. Concentration Changeability: The Attenuation of High Concentration[a]

	Lenght of time after extreme high concentration (minutes)	Adolescents		Adults		Difference: Adults minus Adolescents
		Number of reports	Average mood (z score)	Number of reports	Average mood (z score)	
Point of extreme high concentration (total)	0	233	1.16[e]	440	1.07[d]	−0.09
Points following extreme high concentration	1-30	20	0.11	78	0.66[e]	0.55[e]
	31-60	38	−0.08	115	0.41[e]	0.48[e]
	61-90	96	0.09	116	0.33[e]	0.24[b]
	91-120	79	0.25[c]	131	0.25[d]	0.00

[a] Average mood is based on values that have been standardized according to each person's mean and standard deviation. The significance tests evaluate the deviation of the mean from a neutral mood of $z = 0$.
[b] $p < 0.10$.
[c] $p < 0.05$.
[d] $p < 0.01$.
[e] $p < 0.001$.

The present findings have shown that *as a group* adolescents experience less control over their daily experience and *as a group* they experience more variability in their moods. However, the findings do not indicate whether these two characteristics are related within individual adolescents, or whether variability is related to an adolescent's psychological and social maladaptation. The analyses in this section employ the same three facets of mood variability: degree of variation, changeability, and situational independence. The question is whether within individuals these facets of mood variability are negatively correlated with self-reported control, psychological adjustment, and social adjustment – as the disequilibrium model predicts.

Statistical Indices of Mood Variability

Mood variation and situational independence were measured by the same indices described in the previous section – the standard deviation of composite mood and the proportion of composite mood variance explained by activity. The autocorrelation of each person's mood over the week was used as an index of changeability, an index also used by Huba *et al.* (1976). Higher autocorrelations indicate less changeability from one time to the next.

These three indices are relatively independent of each other. Only width of variation and changeability are correlated, and this correlation is negative ($r = -0.36$, $p < 0.001$). In other words, those with greater variation in moods change moods less quickly. Hence, mood variability is not a homogeneous construct and cannot be considered as a singular characteristic of an individual.

These three separate types of mood variability occur equally across different subgroups of teenagers within this sample. None is significantly related to sex, socioeconomic status, or age. However there are associations with academic intelligence and creativity. Table IV shows that situational independence is related to higher academic ability, as measured by the SCAT; and all three indices are related to fluency, as measured by Guilford's (1967) Unusual Uses Test.

The Relation of Mood Variability to Stress and Lack of Control

In the nomological net of turmoil theorists, mood variability is related to the inadequacy of an adolescent's psychological controls. External stress is an added factor which disrupts the system, increasing mood variability. These links in the nomological net are evaluated here. The testable hypothesis of the disequilibrium model is that stress and lack of control should be correlated with greater mood variability.

The expected contribution of stress is only partially supported by the data. First, contrary to the model, amount of experienced past stress is not related to

Table IV. Correlations of Mood Variability with Adjustment Indices for the Adolescents ($N = 75$)[a]

	Dimensions of mood variability		
	Variation (sd)	Changeability (autocorrelation)[b]	Situational independence (% variance explained)[b]
Intelligence and Creativity			
Academic ability (SCAT)	−0.11	−0.07	0.27[c]
Creativity (Unusual Uses Test)			
1. Fluency	0.29[c]	−0.22	0.25[c]
2. Flexibility	0.13	−0.15	0.41[e]
3. Originality	−0.09	−0.11	0.24[c]
Subjective control and life stress			
Life stress			
(in last four years, $N = 40$)	0.35[c]	−0.00	0.17
Control (average self-ratings)			
1. Concentration	−0.01	0.20	−0.07
2. Difficulty concentrating	0.19	0.32[d]	−0.02
3. Wish to be doing something else	0.29[d]	0.06	−0.06
4. Choice in selecting one's activity	−0.00	−0.18	−0.30[c]
5. Control of one's actions	0.05	−0.04	−0.10
Psychological and social adjustment			
Psychological adjustment			
1. Average composite mood	0.12	−0.01	−0.01
2. Alienation from others	−0.24[c]	0.13	0.20
3. Alienation from self	−0.04	−0.16	0.07
4. Ego development	−0.05	−0.01	0.14
Social adjustment			
1. Semester grades	−0.19	−0.11	0.24
2. Teachers' ratings (avg.):			
a. Intellectual involvement	−0.25[c]	−0.11	0.24
b. Social involvement	−0.03	−0.10	0.24
3. Number of friends	0.13	−0.01	0.17
4. Leadership in organization	0.24[c]	−0.18	0.18
Multiple r^2	0.56	0.31	0.45
Adjusted r^2	0.04 (ns)	0.00 (ns)	0.00 (ns)

[a]Because of incomplete data the Ns are reduced for some of the correlations.
[b]Values for these variables have been reversed (made negative) so that higher scores indicate higher variability.
[c]$p < 0.05$.
[d]$p < 0.01$.
[e]$p < 0.001$.

degree of control. Amount of stress is not correlated with averaged reported concentration ($r = 0.09$, ns), difficulty in concentrating ($r = 0.23$, ns), wish to be doing something else ($r = -0.10$, ns), choice in selecting one's activity ($r = -0.12$, ns) nor control over one's actions ($r = -0.15$, ns). Hence, stress does not appear to weaken personal control, but does show some relationship to one criterion of mood variability (Table IV). Amount of stress is correlated with

the degree of variation in an adolescent's moods, though not with mood changeability or situational independence.

The expected relationship of control with mood variability is equally undramatic. No parameter of mood variability is related to poorer concentration, as the model predicts, although two parameters (degree of variation and changeability) are related to greater difficulty in concentration. Only degree of variation is correlated with higher average wish to be doing something else, and only situational independence is related to less perceived choice over one's activities. Most significant is the finding that none of the three parameters is correlated with average responses to "Were you in control of your actions?"

In sum, the evidence that moodiness is related to an absence of control is quite weak. There is an indication that range of variation is related to stress and that separate facets of mood variability are related to isolated components of subjective control, but these correlations are generally unimpressive.

The Relation of Mood Variability to Psychological and Social Adjustment

The next step in the disequilibrium model associates mood variability with maladjustment. The last part of Table IV shows the correlations of the variability parameters with the indicators of psychological and social adjustment. What is conspicuous here is the lack of strong correlations. Furthermore, two of the three significant correlations go in the opposite direction from the turmoil hypothesis: The adolescents reporting wider mood variation are less alienated from others and are more likely to be leaders in organizations. The only support for the model is a negative association between degree of variation and teachers' ratings of intellectual involvement in class.

Taken as a whole, these findings appear to disconfirm the disequilibrium model. Research with a larger sample might reveal slight relationships; however, such relationships are not likely to be very substantial. The findings show that teenagers' mood variability is not strongly related to psychosocial maladjustment or lack of control. Hence the mood variability of adolescents is not turmoil. Yet they do show more turmoil than adults. The question remains, What do the wider mood variation and greater changeability of adolescents represent?

Mood Variability and Life Style

The week of the sports star discussed earlier in this paper suggests an alternative to disequilibrium explanations for adolescents' moods. The emotional ups and downs in his experience are related to the activities and events that make up his week. Perhaps variability is related to unique characteristics of adolescents' life styles.

To follow up on this possibility, we examined the correlations between mood variability and estimates of how each person spends his or her waking

hours. We considered the proportion of time each adolescent reported being with different classes of people, engaging in different activities, being in different environments, and thinking about different things.

These life style variables were not correlated with mood changeability or situational independence. Apparently, the latter two facets of adolescent variability are related to neither disequilibrium nor life style.

However, life style variables are related to degree of mood variation. The range of moods shows significant correlations with how adolescents spend their time, as can be seen in Table V.

Mood variation varies on a friends-versus-school axis. Wider variation is reported by those who spend more time with friends, in public, and who spend more time thinking about their appearance and about heterosexual relationships. Mood variation is associated with a peer-oriented life style. Further evidence indicates that teenagers with high mood variation are more likely to have a boy friend or girl friend (eta = 0.27, $p = 0.03$) and (as shown in Table IV) they are more likely to be leaders in organizations and they are less likely to be alienated from others. Unfortunately, these findings do not indicate whether the peer-orientation causes the moods or *vice versa.*

Table V. The Relation of Mood Variability with Life Style[a]

Variable	*r*
Percent of self-reports in the presence of	
Family	−0.16[c]
Friends	0.32[c]
Alone	−0.19
Percent of self-reports	
At Home	−0.27[b]
In Public (nonschool)	0.27[b]
Percent of self-reports with thoughts on	
School and schoolwork	−0.27[b]
Sports	−0.00
Food	−0.12
Television	0.09
Self (primarily one's appearance)	0.23[b]
Society, religion, politics	−0.20
Family	0.09
Friends	0.09
Heterosexual relations	0.40[d]
Time (e.g., how slow it's going)	−0.27[b]

[a]The table shows the correlations between the specified variables and the standard deviation of each adolescent's moods ($N = 75$). The authors wish to thank Kirk Alley for the coding of the thoughts. These percentages are based only on self-reports during nonschool hours.

[b]$p < 0.05$.

[c]$p < 0.01$.

[d]$p < 0.001$.

Involvement in school appears to be bear an opposite relation to mood variability. Wider variation is negatively associated with amount of time spent thinking about school and amount of time spent doing homework ($r = 0.22$, $p = 0.05$). As shown in Table IV, it is negatively associated with teachers' ratings of intellectual involvement in class and possibly with semester grades. Mood variation and schoolwork appear to be in conflict. Experiencing wide moods appears to interfere with giving attention to school. However, partial correlations indicate that this is not entirely true. When amount of time with friends or amount of time thinking about heterosexual relations is controlled, these correlations disappear. Hence, peers seem more likely than moods to compete with school for an adolescent's attention.

The percentage of time an adolescent thinks about "society, religion, and politics" has a significant negative correlation with degree of variation, regardless of which variables are controlled. This suggests that mood variability interferes with an adolescent's directing attention to the world outside his or her immediate experience.

This pattern of relationship can be summarized with reference to our sports star. Although he is only one individual, his life style illustrates the norm for teenagers with wide mood variance. There is little suggestion that his wide mood swings represent inner turmoil or lack of control – he is not a victim of personal disequilibrium. What distinguishes him is the amount of time he spends with friends in variable, unstructured situations and the minimal attention he gives to school and the world outside. His wide mood swings appear to occur as a natural part of his active life with his peers.

DISCUSSION

Recent research has cast doubt on the image of the adolescent years as a period of turmoil (Offer, 1969; Offer and Offer, 1975; Douvan and Adelson, 1966; Rutter *et al.*, 1976). The evidence for emotional turmoil suggests that it occurs in early adolescence and is confined to girls (Simmons *et al.*, 1973, 1979). The research reported here has demonstrated greater mood variability among adolescents, but has indicated that it is not turmoil. The teenagers with the most variance in our study did not show greater disequilibrium. Their mood swings did not appear to be either arbitrary discharges of internally generated drives or pathic responses to overwhelming pressures from the external world.

Occasionally, writers have suggested a relationship between variability and adjustment opposite from the one we tested: that inhibition of moods rather than free expression is the maladjusted response to adolescent conflicts (see Jacobson, 1961; Freud, 1958). This study offers little evidence that either less or more variance is associated with psychological or social maladjustment. Linear (Table IV) and curvilinear relationships (not shown) have turned up few signi-

ficant associations. Within normal populations, mood variability does not appear to be strongly related to adjustment.

Nonetheless, adolescents' moods are more variable, and the implications of this mood variability are important. The phenomenologist Boss states, "An individual's mood at a particular moment establishes the whole nature of his relationship with the world" (quoted by Wessman and Ricks, 1966, p. 17). Behavioral validation for this statement is indicated by research showing moods to be strongly related to work productivity (Hersey, 1932), school performance (Mayers, 1978), social withdrawal (Wessman and Ricks, 1966), helping others (Batson *et al.*, 1979), and drug use (Paton *et al.*, 1977), among other things. Fluctuations in mood affect the capacity for stable, enduring participation in the world.

The findings of this research indicate two separate ways in which adolescents' daily moods are more variable than those of adults. First, adolescents show a wider range of moods. They experience higher highs and lower lows. Adulthood seems to involve trading emotional richness for personal control (Block, 1971).

The second way relates to the sequence of emotional states in time. The highs and lows of the adolescents come and go quickly, while those of the adults endure much longer. Adolescents' moods are more changeable. Thus, while the adolescents experience more high states, these tend to be short-lived. In contrast, the adults show a higher, more stable mood level.

These differences have existential implications as to how adolescents experience the world: Teenagers, especially those most engaged with friends and lovers, experience a world that is much less even and steady. An unsteady world does not make for prolonged commitments of attention. The data indicate that adolescents' concentration is even shorter-lived than their moods. Only 30 minutes after adolescents have reported high concentration there is no remaining trace of focused attention. Adolescents rarely think about anything long and hard.

These findings may be most significant to educators and others concerned with teenagers' socialization. The task of teachers is to engage their students with abstract topics having little immediate relevance. Many teachers deal with this task by adopting TV personalities and presenting the material in the form of entertaining "one-liners." This approach concedes the fickleness of students' attention. An opposite and more difficult approach is to see teenagers' short attention span as a challenge and attempt to engage them in enduring involvements. The President's Commission on Youth (1974) lamented the failure of schools to promote the capacity for deep, focused involvement. The findings of this research point more than ever to the need to take this challenge seriously. Variability is not a malady of adolescents, but may well be an obstacle to their growth.

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