BEHAVIOR

Hard times for the me generation

The next time someone tells you things were tougher when they were your age, you might politely suggest they read the recently released psycho-social survey done by the University of Michigan's Survey Research Center.

In a 1976 survey of 2,000 men and women compared to a nearly identical survey done in 1957, social scientists report that "people, especially young people, are having greater difficulty integrating into society today, compared to a generation ago." People feel less obligated toward society than to themselves, according to the study. As a result, "people seem more anxious about a world they feel less in tune with," say researchers Joseph Veroff, Elizabeth Douvan and Richard Kulka.

At the same time, however, those surveyed appeared more confident of handling distress on a personal level. Overall, says the report, Americans' sense of happiness and well-being have remained stable over 20 years. Only 2 percent more people in 1976 reported ever feeling they might have a nervous breakdown (21 percent, versus 19 percent in 1957), or that their future was not brighter than their present (11 percent to 9 percent).

But "dramatic shifts" are seen in reports of worries and symptoms of anxiety, say the researchers. In 1976, young people especially report more trouble sleeping, nervousness, headaches, loss of appetite and upset stomach than did their 1957 counterparts.

Such anxiety symptoms may be traced to "evidence that people now feel a greater difficulty in connecting to their roles and relationships in society, and especially among the young," Veroff says.

As compared with the 1957 group, 1976 people are more unhappy about their communities and country (24 percent versus 13 percent), their jobs (20 percent versus 11 percent) and their interpersonal lives (13 percent versus 3 percent). The study also found that people are more willing to seek professional help than they were two decades ago. Since 1957, the percentage of adults reporting actual use of behavioral professionals has risen from 14 percent to 26 percent.

The aftermath of hyperactivity

It is well documented that hyperactivity can disrupt a child's classroom work as well as his or her social behavior at school. But what becomes of hyperactive youngsters in later life? University of Iowa psychiatrists studied 135 boys treated initially at the university's child psychiatry clinic between 1967 and 1972 and followed each boy over a five-year period.

The follow-up study indicates that hyperactive children are no more likely than others to become juvenile delinquents. "Few of our children are involved in illegal behavior, and the degree of hyperactivity doesn't predict which ones will have legal troubles and which ones won't," says Jan Loney, who conducted the study.

What does seem to predict later delinquency is the degree of aggression exhibited by the children, according to the study, which utilized interviews, rating scales, questionnaires and psychological tests on the adolescent subjects.

The research also found that the boys who responded best to drug therapy as children were less likely to become involved with illegal drugs at a later age.

While delinquency may not be a delayed consequence of hyperactivity, learning problems apparently are. "About 70 percent of the boys in the follow-up study were two years below their grade level in reading and arithmetic," Loney says. "They are probably more disabled in this way than in any other." A "small but measurable" association between favorable drug treatment response and better school achievement can be seen, however.

PHYSICAL SCIENCES

From our reporter in New York at the Meeting of the American Physical Society

The hunting of the axion

Each attempt toward a unified description of basic physics, each trial at taking some bit of the large number of subatomic particles and the forces that animate them and uniting it to some part of the rest seems to predict the existence of yet another effect or particle that has to be reckoned with. One thing leads to another, and the final unity, if and when it comes, will be extremely complex. Meanwhile each partial attempt at unity must be checked out by testing its predictions.

One such is the particle called the axion. The axion comes from an attempt to systematize the structure and behavior of a large number of particles in the theory called quantum chromodynamics. If that is done in a way that seems good for a lot of other reasons (SN: 4/15/78, p. 228), the masses of various particles do not add up properly. To make the difference, the existence of axions is postulated.

Axions are supposed to have very low mass and should therefore be easy to find. So far they have not been found though a number of attempts were reported. At the Armed Forces Radiobiological Research Institute in Bethesda, Md., L. Teig of the University of Maryland and collaborators looked for axions in the radiation produced by electrons being slowed to a stop in a tantalum target. Axions are supposed to decay into either two gamma rays or an electron-positron pair. No axion signals were seen.

A group at Princeton University (R. Dunford and collaborators) reasoned that axions might appear when excited atomic nuclei lost their excess energy. The search was made with excited states of carbon 12, but found no evidence of axions. Two members of the group (A. Hallin and F. P. Calaprice) suggest that the failure may be from looking for axions that flew too far before decaying. They propose an experiment that would use excited carbon and beryllium to look for higher-mass (more than five million electron-volts) or shorter-lifetime axions.

A bubble chamber in aspic

A liquid that is slightly superheated is ready to burst into bubbles of vapor provided there is something present around which the bubbles can form. Peter Glaser, who invented the bubble chamber, showed that the bubbles will form around ionized atoms of the liquid. Passage of many kinds of subatomic particle through the liquid leaves a trail of such ions, and so bubbles will form along the particle's track. Bubble chambers are now an essential item in the equipment of particle physics laboratories.

The standard bubble chamber is a big thing. Robert E. Apfel of Yale University now offers a principle by which small versions — even small enough to go into a pocket and be personal dosimeters — can be made. The standard bubble chamber has technical as well as scientific reasons for being big: The liquid has to be kept under pressure so that it all doesn't boil off, and the pressure has to be dropped quickly to let bubbles form, then raised to destroy them. The mechanical requirements that lead to large sizes have been generally accepted because the interest is in seeing as many particle tracks as possible and showing up the curvature of the tracks that is used to identify the different particles.

Apfel's version takes liquids that are 10° to 50° superheated at room temperature and encases small droplets of them in a gel. Radiation will make a given droplet bubble up, and the amount of vapor will be proportional to the dosage. Other droplets remain ready to react in their turn. The device has thus a continuous long-term sensitivity to radiation that is lacking in a bubble chamber, which is sensitive only for the instant its pressure is dropped.