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## Ageing

- Erikson has identified three separate PSYCHOSOCIAL STAGES during adulthood, each with its associated CRISIS.
- CROSS-SECTIONAL studies of change during adulthood confound age differences with cohort difference, and are better replaced by CROSS-SEQUENTIAL studies.
- Intelligence and brain size are constant during adult life until about the age of 60, when a decline begins.
- The elderly suffer from a range of physical and sensory deficits which can exacerbate intellectual problems, and result in specific problems.
- SENILE DEMENTIA is a common problem in those over 75, and shows a characteristic sequence of decline in interests and abilities.
- Psychological treatment for senile dementia aims to be ameliorative, utilizing those abilities which are best preserved, minimizing inadvertent sensory deprivation, and using the environment as a COGNITIVE PROSTHESIS for failing memory and thought process.

Many things change with age, and the changes occur from early adulthood onwards. Some are physical and some psychological; some are continuous and others occur in stages, akin to child development. Life is continual change and adaptation, reflected in LIFE-SPAN DEVELOPMENTAL PSYCHOLOGY.

The American psychologist Erik Erikson (1902–) has identified eight PSYCHOSOCIAL STAGES OF DEVELOPMENT from birth to old age (Table 17.1), the first four being Freud's psychosexual stages (see also Chapters 10 and 11). Each stage has a critical problem or CRISIS to be overcome, successfully or unsuccessfully. Thus adolescence shows the well-known IDENTITY CRISIS, when individuals experiment to attain a firm and distinctive adult personality, copying from role models (friends, pop or sports stars, or ideals from philosophy or literature). Successful resolution of a crisis results in a BASIC STRENGTH, of long-lasting benefit for future stages. Table 17.1 also shows other characteristics assigned by Erikson to each stage.

Adulthood consists of three stages: EARLY ADULTHOOD, in which the major crisis is intimacy with others, in the form of love; MIDDLE ADULTHOOD, where caring is the basic virtue, and the crisis is the need to be GENERATIVE, producing objects of worth or quality for posterity

Stages	A	B	C	D	E	F	G	H
I Infancy	Oral-respiratory, sensory-kinaesthetic (incorporative modes)	Basic trust vs. basic mistrust	Maternal person	Hope	Withdrawal	Cosmic order	Numinous	Idolism
II Early childhood	Anal-urethral, muscular (retentive-eliminative)	Autonomy vs. shame, doubt	Parental persons	Will	Compulsion	'Law and order'	Judicious	Legalism
III Play age	Infantile-genital, locomotor (intrusive, inclusive)	Initiative vs. guilt	Basic family	Purpose	Inhibition	Ideal proto-types	Dramatic	Moralism
IV School age	'Latency'	Industry vs. inferiority	'Neighbourhood' school	Competence	Inertia	Technological order	Formal (technical)	Formalism
V Adolescence	Puberty	Identity vs. identity confusion	Peer groups and outgroups; models of leadership	Fidelity	Reputation	Ideological worldview	Ideological	Totalism
VI Young adulthood	Genitality	Intimacy vs. isolation	Partners in friendship, sex, competition, cooperation	Love	Exclusivity	Patterns of cooperation and competition	Affiliative	Elitism
VII Adulthood	(Procreativity)	Generativity vs. stagnation	Divided labour and shared household	Care	Rejection	Currents of education and tradition	Generational	Authoritarianism
VIII Old age	(Generalization of sensual modes)	Integrity vs. despair	'Mankind' 'My kind'	Wisdom	Disdain	Wisdom	Philosophical	Dogmatism

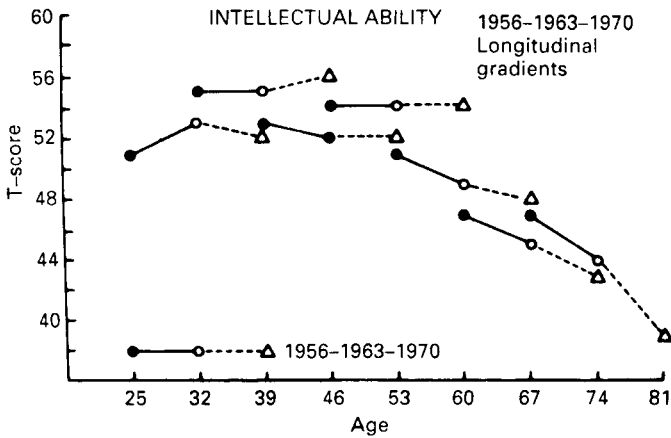
Table 17.1

The eight stages of development, from infancy to old age, in Erikson's account of psychosocial development, showing the psychosexual stages (A), the psychosocial crisis characterizing each stage (B), the significant persons who will help with that crisis (C), the basic strength (D) that will be achieved if the crisis is successfully surmounted, and the basic antipathies or pathologies (E) that can result from inadequate resolution of the crisis. In addition the table also shows Erikson's ideas on the social principles that predominate at each stage (G), and the ritualizations (H) associated with each stage. Reproduced with permission from Erikson E (1982), *The life cycle completed: a review*, New York, W W Norton, by permission of W W Norton & Co, Inc, Copyright 1982 by Rikan Enterprises Ltd.

(children, social structures, intellectual or aesthetic products); and LATE ADULTHOOD in which the crisis is developing an EGO IDENTITY, of a life well lived, with biological and social fulfilment. Failure at these crises results in SOCIAL ISOLATION in early adulthood, in STAGNATION, of failure to achieve in middle life, and of DESPAIR, of a life ill-spent, and inability to accept the inevitability of death during later life.

Erikson emphasizes the importance of *social* pressures in adolescence and adult life. However ageing is also a *biological* process, with inevitable changes. Strictly, ageing starts at about three to four months of age, when neurones cease dividing and after which only neuronal loss occurs. Nevertheless, the brain continues developing into adult life with an increased neuronal connectivity.

The decrease in neurones in the adult brain has led to a series of myths, unsupported by adequate evidence, of declining intellectual ability in adulthood. The myths result from two errors. The first reflects the venerable but erroneous assumption that intelligence relates to brain size, brain size and IQ being empirically uncorrelated. The second error is more subtle. Early studies measured overall brain size as well as histological measures, such as total neurone counts and neurone density. CROSS-SECTIONAL STUDIES, examining brains from individuals of different ages (e.g. 10, 20, 30...80, 90) found that brain size and neuronal number decreased with age. Other cross-sectional studies had also found a continuous decline in intelligence from age twenty onwards. Putting the studies together, intelligence was assumed to decline with age because of decreasing brain size. That conclusion is not justified though because cross-sectional studies confound age with date of birth. If in 1990 I compare the brains of a 30 year-old and a 70 year-old, I am also comparing brains born in 1960 and 1920. The social, educational and nutritional changes occurring between 1920 and 1960 might have affected the brains as much as has ageing. The methodological solution is to carry out a LONGITUDINAL STUDY, although there are practical problems; for intelligence we would have to wait half a century until we got any results, and studies of brain morphology are problematic in that post-mortems can only be carried out once. A compromise in studying intelligence is a CROSS-SEQUENTIAL study, which starts as a cross-sectional study, but then the *same* individuals are reassessed a few years later. Figure 17.1 shows a cross-sequential study in which intelligence was tested 7 and 14 years after initial testing in 1956. The cross-sectional data for 1956 suggest that intelligence declines steadily from age 32 to age 60, whereas the longitudinal data show that only after age 60 is there a genuine decline in IQ. In studying brain size the methodological problem is solved by comparing brain size with total cranial capacity (for a larger brain at an earlier age must still have fitted inside the skull, and the skull does not shrink); a genuine decline in brain size only seems to occur after age 60.



**Fig. 17.1** Shows cross-sequential changes in intellectual ability of a group of adults assessed in 1956, 1963 and 1970. Solid circles represent measurements made in each cohort in 1956, open circles measurements made in 1963 and open triangles measurements made in 1970. The abscissa shows the age of each group of subjects at the time the measurement was made. Reproduced with permission from Schaie K W and Labouvie-Vief G (1974). Generational versus ontogenetic components of change in adult cognitive behaviour: a fourteen-year cross-sequential study. *Developmental Psychology*, **10**, 305-20.

Though the elderly undoubtedly show a declining IQ, the reasons for it are not obvious, not necessarily reflecting a simple decrease in information processing ability. In part the elderly perform less well on IQ tests because they fatigue more easily, are overly cautious in responding, and because of a **NEGATIVE SELF-EVALUATION**, believing themselves incapable of doing such tests; together these factors mean performance does not reflect competence. The decrease in IQ is also affected by many factors which are 'pathological' in some sense, but are so frequent in the elderly as to be seen as part of normal ageing. Those elderly with poor health have lower IQ scores, as do those with raised blood pressure or hearing defects. IQ also falls in the year or two before death, the **TERMINAL DROP**. Much of the intellectual deficit observed in the elderly therefore disappears if only the healthy, fit, normotensive, hearing elderly are assessed. The non-homogeneity of the elderly as a population is emphasized by greater range of IQ scores obtained in the elderly as compared with the young; many elderly persons are the intellectual equals of individuals 60 years younger. Indeed overall the effects of age are small compared with the large interindividual differences that occur at any age.

Intellectual deficits in the elderly particularly affect **NON-VERBAL** (or **PERFORMANCE** tasks) rather than **VERBAL** abilities. The distinction is also characterized in terms of **FLUID** rather than **CRYSTALLIZED INTELLIGENCE**, or

CONTROLLED rather than AUTOMATIC PROCESSING; well-consolidated, over-learned and automatic skills such as language being less impaired than tasks requiring flexibility, novel thought or action, or the learning of new skills. Many non-verbal skills also stress response speed, and although the elderly are suggested to do less well because they cannot respond as quickly, that does not explain the results because the elderly still perform less well with unlimited time.

The elderly also show other physical deficits relevant to psychological functioning, particularly in vision and hearing. Visual acuity worse than 6/18 (i.e. objects are only visible at 6 feet which should be visible at a distance of 18 feet) occurs in 10% of 60–69 year olds, 30% of 70–79 year olds, and 35% of those over 80, due principally to glaucoma, cataract, macular degeneration and diabetes. About 30% of those over 65 have hearing deficits. Sensory deficits do not only restrict physical activity but also produce social isolation, with restriction to the home, and reduction in the circle of friends, and decreased intellectual stimulation. Social isolation is stressful and can precipitate psychiatric illness, particularly if a predisposition is present. The syndrome of PARAPHRENIA, a form of paranoid schizophrenia marked mainly by delusions (see Chapter 30), and which occurs in the elderly, is especially common in those with visual or auditory deficits, presumably due to impaired communication with others. Such problems of sensory deficits are not confined to the elderly, but occur at any age; in one experiment, students wore ear-plugs to produce a 30–40 dB hearing loss and showed symptoms of irritability and feelings of alienation and inferiority.

Changes also occur with age in non-intellectual functioning. Retrieval from long-term memory is less good, although a signal detection analysis (see Chapter 2) shows this to be due to greater caution rather than worse memory, RECOGNITION being less impaired than RECALL. On learning tasks the elderly perform less well because they do not use deep information processing if superficial processing is possible, although when encouraged to use deep processing they do perform better. The adoption of different strategies by the elderly reflects a broader personality change of old age, DISENGAGEMENT, which is a greater degree of introversion, coupled with a withdrawal from other people and activities. Although imposed by society to some extent, with enforced retirement in many cases, restricted opportunities for developing new activities, and diminished income and resources, it is also an active choice by the elderly to meet their own needs, and allow a reflective acceptance of life and its meaning.

In medical and psychological terms, the major challenge of old age is SENILE DEMENTIA, a progressive loss of intellectual ability, usually accompanied by cerebral pathology in the form of ALZHEIMER'S DISEASE or MULTI-INFARCT DEMENTIA, although there are other causes. There is a decrease in brain size and widening of the sulci, narrowing of cortical

convolutions, decreased white matter and enlarged ventricles. The psychological deficits of dementia are not merely an exaggeration of normal ageing, although performance tasks are more impaired than verbal tasks, but there are also deficits in iconic, primary, and secondary memory (which are relatively unimpaired in normal ageing), and problems in learning, conditioning, and the use of language, particularly for object naming, and there is POVERTY OF SPEECH (restricted vocabulary, expression and spontaneous speech). Together these suggest a separate defect from that of normal ageing. Deficits progress fairly rapidly and in a predictable order, so that a scale of disability may be created. The condition starts with loss of hobbies and participation in social events, and then an inability to wash and to dress, followed by a disorientation in space and an inability to recognize other persons and to communicate; finally there is loss of control of bladder and then of bowels, an inability to move and finally an inability to eat. Dementia is common, *severe* dementia occurring in 0.6% of 65–74 year olds, 5.5% of 75–84 years olds, and 17.8% of over 85 year olds, while *mild* dementia occurs in 7.3%, 27.8% and 42.9% of the same age groups.

Psychological *treatment* of dementia cannot be curative because lost cortex cannot be replaced. However, careful consideration of psychological factors can reduce the burden on carers, reduce institutional care, and make life more acceptable to the patient; the intention is to *ameliorate* problems where possible. The benefits of reducing incontinence from six times per day to once per day are vast, both for patient and carer. Since intellectual deficits are least for automatic processing, it is such remaining skills that should be exploited to the full. Therefore, if possible, the mildly demented patient is kept in their own home or an environment they know well, so they know their way around, can find things, carry out basic tasks, etc. Much support involves providing aids for a failing memory (so that, as one worker put it, the whole environment becomes a cognitive prosthesis for the missing intellectual skills). Such simple devices as ensuring that a purse is always kept in the same place, or using large print for lists, can make the difference between success and failure at simple tasks, which is the difference between dependence and independence. Within institutions, it is being realized that INSTITUTIONALIZATION can exacerbate dementia. Many patients suffer sensory deprivation, in part due to hearing or vision loss, but also due to a lack of social interaction and a reduced need for physical action, since all needs are met, and this can exacerbate problems. Staff can also reinforce inappropriate behaviour, feigning interest or understanding when a patient's speech is confused, and thereby increasing such behaviour. Treatment programmes have used two techniques: STIMULATION AND ACTIVITY PROGRAMMES, which aim, through occupational therapy and social and domestic activities, to stimulate the deprived patient, and thereby

restore purposive behaviours, and REALITY ORIENTATION in which the intention is to make patients aware that their actions have results which are of consequence to them, thereby reinforcing such actions. Both forms of treatment have been shown to be of benefit in improving behaviour.