AFRICA POPULATION INSTITUTE (API)

COMPREHENSIVE CERTIFICATE IN PUBLIC HEALTH PROGRAM

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Background introduction

API is consolidating its activities in Uganda with a view to use this opportunity as a springboard to expand its operations within the rest of Africa. We are aiming at providing the present and long-term educational needs of our students, members and partners. We target all areas of concern especially NGOs, Public and Private sectors including hospitals, schools and also in local government administrations, must harness affordable capacity building. Our strategy is, where appropriate, incorporating both Capacity building expertise and Information Technology in whatever project undertaken to enhance the usefulness of the programs and project to the students, workers and the surrounding population in Africa.

Goal: To promote and strengthen the sustainability of capacity building programs that ensures people’s performance and productivity in Africa.

Vision: To raise a generation that is knowledgeable and skillful for the transformation of Africa through Education and Sensitization.

Mission: To Insinuate and empower the population with the knowledge and skills to be self-reliance in the fight against poverty, ignorance and diseases.

Other Core programs:

- Capacity building program
- Research and evaluation program
- Health marketing/ health promotion program
- Organisational Development
- Information Technology

Strategic objectives:

To provide trainings aimed at capacity building for sustainable Africa Development
To provide community services including consultancies within and outside Africa
To engineer the development of health related researches
To make greater economic contribution to the communities of Africa

Strapline: Together we can transform generations!
Minimum Entry requirements to the course
- Uganda Advanced Certificate of Education with at least one principle pass or its equivalent
- Must be fluent in both written and spoken English language
- Work experience is an added advantage

Mode of Delivery/Instruction
Face to face lectures are conducted at the beginning and during the course of the semester and there is a new development in the mode of delivery through online resources, Learning materials are also provided through quality print modules/hand books. We are in the process of developing CDs, DVDs and VCDs.

Course Duration, Assessment and Grading System

The course takes three months. Assessment tests and course work are done in the middle of the term and contribute 40% towards the final grade. The final exam is done at the end of the months and contributes 60%, to the total marks which is 100%. The final grades are streamlined as follows.

Letter Grades	% Equivalent	Standard & Grade	Guideline Grade Descriptions
A	80 – 100	Exceptional 5.0	Work of distinguished quality which is based on a very extensive reading and which demonstrates an authoritative grasp of the concepts, methodology and content appropriate to the subject and to the assessed task. There is clear evidence of originality of thought and the ability to synthesize materials, think analytically and to synthesize material effectively.
B+	75-79	Excellent 4.5	Work which clearly demonstrates all the qualities of “B” but which reveals greater insight and more originally.
B	70-74	Very Good 4.0	Work which demonstrates and above average level of understanding of concepts, methodology and content appropriate of the subject and which draws on a wide range of referenced resources. There is clear evidence of critical judgment in selecting, ordering and analyzing content. Demonstrates some ability to synthesize material and to construct responses which reveal insight and may offer some occasional originality
B-	65-69	Good 3.5	Work which contains most of the qualities of a “B” grade but the critical judgment is less developed and there is less insight and originality.
C	60-64	Pass 3.0	Work with the qualities of a “C” grade but containing a greater degree of critical analysis and original insight
D	55-59	Satisfactory 2.5	Work derived from a good basis of reading and which demonstrates a grasp of relevant materials and key concepts and the ability to structure and organize arguments. The performance in assessment may be routine but the work will be arculate, clearly presented and written and include some critical analysis and a modest degree of original insight. There will be no serious omissions or irrelevancies
E	50-54	Marginal Pass 2.0	Work that demonstrates more of the qualities of a “E” grade but which contains less of critical analysis and little or original insights
F	Below 50	Fail 0.0 - 1.5	Work which fails in significant respects to meet the criteria. And here students are advised to re do the work on aspect of organization and presentation and show evidence for understanding some of the key concepts.

Attendance and assignments
Students must participate in online discussion, take tests and submit assignments at the specified times. Students are expected to log in on their accounts regularly, that is; at least three times a week for the duration of each course. Students who do not log in for one week will receive a mailed notification and warning. The consistence of absence from face to face lecture and online dialogue will constitute an automatic disqualification and discontinuation from the course. Students who do not submit assignments for a course will not be permitted to take the course examination and will be expected to redo the course when it is next offered. Tutors are not obliged to accept coursework's submitted after the stipulated date nor to grant extensions. Late submission will automatically be subjected to reduction of one mark a day for the first 2 weeks of delay, for submission after a fortnight, an assignment will only receive 50% if it satisfies the examiner.

Examination Regulations
Some students who involve themselves in examination malpractices e.g. cheating, smuggling in notes, etc will be victimised. All students are strongly warned that cheating or attempting to cheat in Africa population institute Examinations may lead to dismissal from the Institute. Please note that **course works, research or project assignments** are also part of API Examinations. Copying or pirating other works (plagiary), or hiring another person to do one's assignments is an Examination malpractice that may lead to dismissal from the institute.

The examination results of any student who has sat the examinations without being registered shall be nullified. Students are strongly warned against this. A student who has not attended up to 60% of the instruction time may be denied to sit period end examinations. Cases of impersonation, falsification of documents or giving false/incomplete information whenever discovered either at registration or afterwards, will lead to automatic cancellation of admission, revocation of awards where applicable and prosecution in the courts of laws.

API Online Library
API has secured open access books and journals to download or read online, all students enrolled for programs at API have 24/7 access to the content server and databases which provide thousands of materials related to the courses offered. Each student is given a username and passwords that enable them access such resources. There are also open education resources for universities and other tertiary institutions free online and accessible for our students such as emerald insights and Mendeley which are instrumental for virtual education and ABM Education Accreditations in United Kingdom

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Each course unit offered in this course has specific contact hours which are a measure used to indicate the relative weight given to an individual course in a relation to fulfilling the course. In order to complete the program of the study successful, students must achieve the required number of lecture hours (LH) just like one tutorial hour (TH) is equal to one contact hour and two practical hours (PH).

Period	Course Code	Course Name	Contact Hours
Term one	CPH 101 CPH 102 CPH 103 CPH 104	English Special Program Life skills Computer Applications Mental Health	15 15 15 15

Term Two	CPH 201 CPH 202 CPH 203 CPH 204	Basic Pediatric Care Communication Skills Occupational Health and Safety Managing Infections	10 10 10 10
Term Three	CPH 301 CPH 302 CPH 303 CPH 304	Maternal and Child Health Basic Nursing Environmental Management Human Nutrition	12 12 12 12
Recess Term	CPH 401	Case Study on HIV/AIDS Management and Counseling Techniques	15

Term one

CPH 101: English Special Program

English Special Program personal study

Learn English with activities

You can learn English online with the British Council's free website for adult learners. The site contains hundreds of pages of audio, text and video content and over 2,000 interactive exercises. You can become a member and contribute to the site, interact with other users and download free resources.
http://learnenglish.britishcouncil.org/en/?_ga=2.31606650.518925968.1517387069-1720911659.1517387069

LearnEnglish website

Learn English with games

You can learn English while having fun with games and jokes. You can find games for all tastes to help you practise your English or just to have fun. There are also hundreds of illustrated jokes to help you play, enjoy and learn.
http://learnenglish.britishcouncil.org/en/study-break?_ga=2.94514904.518925968.1517387069-1720911659.1517387069

LearnEnglish website: Fun & Games

Learn English with audio and video

We have lots of audio and video materials for language practice. The materials include podcast stories, an audio soap opera, a series of English language teaching TV programmes produced with the BBC and videos that show how to say things correctly in very different situations. http://learnenglish.britishcouncil.org/en/listening-skills-practice?_ga=2.56706542.518925968.1517387069-1720911659.1517387069

LearnEnglish website: Listen & Watch

Learn English for kids

LearnEnglish Kids is a fun, educational website for children aged 5–12 years who are learning English. There are online vocabulary and grammar games, songs, stories,

videos and a range of activities which focus on developing literacy skills. LearnEnglish Kids is also for teachers and parents with hundreds of free printable resources and a support section for parents who want to help their children learn English outside of the classroom.
http://learnenglishkids.britishcouncil.org/en/?_ga=2.200502634.518925968.1517387069-1720911659.1517387069

LearnEnglish Kids website
Learn English for teens
Are you a teenager learning English or are your teenage children studying English? The LearnEnglish Teens website is designed especially for 13-to-17-year-olds. On the site they can find language practice, tips for exams and help with grammar and vocabulary, as well as fun activities, videos, games and puzzles.
http://learnenglishteens.britishcouncil.org/?_ga=2.199911914.518925968.1517387069-1720911659.1517387069

LearnEnglish Teens website
Business English
Do you already speak English but would like to improve your business English? Do you wonder if your business English is up to standard? Would you like to apply for international jobs where English is the language of work? We have the right resources to help you improve your business English.
http://learnenglish.britishcouncil.org/en/business-and-work?_ga=2.199911914.518925968.1517387069-1720911659.1517387069

LearnEnglish website: Business & Work
Learn English with football
If you are learning English and are interested in football, Premier Skills English can help you improve your English while you learn about the Premier League clubs and players. You can also find out about the matches and the Premier League rules and play games and do quizzes. https://premierskillsenglish.britishcouncil.org/

CPH 102: Life Skills

Life Skills Course

Introduction to Life skills Education

Life skills are behaviors used appropriately and responsibly in the management of personal affairs. They are a set of human skills acquired via teaching or direct experience that are used to handle problems and questions commonly encountered in daily human life. The subject varies greatly depending on societal norms and community expectations.

Parenting

Life skills are often taught in the domain of parenting, either indirectly through the observation and experience of the child, or directly with the purpose of teaching a specific skill. Yet skills for dealing with pregnancy and parenting can be considered and taught as a set of life skills of themselves. Teaching these parenting life skills can also coincide with additional life skills development of the child. Many life skills programs are offered when traditional family structures and healthy relationships have broken down, whether due to parental lapses, divorce or due to issues with the children (such as substance abuse or other risky behavior). For example, the International Labor Organization is teaching life skills to ex-child laborers and risk children in Indonesia to help them avoid the worst forms of child labor.

Youth: behavior prevention vs. positive development

While certain life skills programs focus on teaching the prevention of certain behaviors the Search Institute has found those programs can be relatively ineffective. Based upon their research The Family and Youth Services Bureau, a division of the U.S. Department of Health and Human Services advocates the theory of Positive Youth Development as a replacement for the less effective prevention programs. Positive Youth Development, or PYD as it's come to be known as, focuses on the strengths of an individual as opposed to the older methods which tend to focus on the "potential" weaknesses that have yet to be shown. The Family and Youth Services Bureau has found that individuals who developed life skills in a positive, rather than preventative, manner feel a greater sense of competence, usefulness, power, and belonging.

Life skill development in adults

Beyond the K-12 domain, other life skills programs are focused on social welfare and social work programs, such as Casey Life Skills. This program covers diverse topics: career planning, communication, daily living, home life, housing and money management, self-care, social relationships, work and study skills, work life, pregnancy and parenting.

Coping (psychology)

In psychology, **coping** is "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing" or "exceeding the resources of the person"

Coping is thus expending conscious effort to solve personal and interpersonal problems, and seeking to master, minimize or tolerate stress or conflict.[3][4][5] Psychological coping mechanisms are commonly termed coping strategies or coping skills. Unconscious or non-conscious strategies (e.g., defense mechanisms) are generally excluded. The term coping generally refers to adaptive or constructive coping strategies, i.e., the strategies reduce stress levels. However, some coping strategies can be considered maladaptive, i.e., stress levels increase. Maladaptive coping can thus be described, in effect, as non-coping. Furthermore, the term coping generally refers to reactive coping, i.e., the coping response follows the stressor. This contrasts with proactive coping, in which a coping response aims to head off a future stressor.

Coping responses are partly controlled by personality (habitual traits), but also partly by the social context, particularly the nature of the stressful environment.

Types of coping strategies

Hundreds of coping strategies have been identified. Classification of these strategies into a broader architecture has not yet been agreed upon. Common distinctions are often made between various contrasting strategies, for example: problem-focused versus emotion-focused; engagement versus disengagement; cognitive versus behavioral. The psychology textbook by Weiten has provided a useful summary of three broad types of coping strategies:

- appraisal-focused (adaptive cognitive),
- problem-focused: Any coping behavior that is directed at reducing or eliminating a stressor, adaptive behavioral
- emotion-focused: Directed towards changing one's own emotional reaction to a stressor

Appraisal-focused strategies occur when the person modifies the way they think, for example: employing denial, or distancing oneself from the problem. People may alter the way they think about a problem by altering their goals and values, such as by seeing the humor in a situation: "some have suggested that humor may play a greater role as a stress moderator among women than men".

People using problem-focused strategies try to deal with the cause of their problem. They do this by finding out information on the problem and learning new skills to manage the problem. Problem-focused coping is aimed at changing or eliminating the source of the stress.

Emotion-focused strategies involve releasing pent-up emotions, distracting oneself, managing hostile feelings, meditating or using systematic relaxation procedures. Emotion-focused coping "is oriented toward managing the emotions that accompany the perception of stress".

Typically, people use a mixture of all three types of coping strategies, and coping skills will usually change over time. All these methods can prove useful, but some claim that those using problem-focused coping strategies will adjust better to life. Problem-focused coping mechanisms may allow an individual greater perceived control over their problem, whereas emotion-focused coping may sometimes lead to a reduction in perceived control (maladaptive coping).

Folkman and Lazarus identified five emotion-focused coping strategies:

- disclaiming
- escape-avoidance
- accepting responsibility or blame
- exercising self-control
- positive reappraisal

and three problem-focused coping strategies: seeking social support and "taking action to try to get rid of the problem is a problem-focused strategy, but so is making a list of the steps to take".

Lazarus "notes the connection between his idea of 'defensive reappraisals' or cognitive coping and Freud's concept of 'ego-defenses'", coping strategies thus overlapping with a person's defense mechanisms.

Positive techniques (adaptive or constructive coping)

One positive coping strategy, "anticipating a problem...is known as **proactive coping**."Anticipation is when one "reduce[s] the stress of some difficult challenge by anticipating what it will be like and preparing for how [one is] going to cope with it".

Two others are "*social coping*, such as seeking social support from others, and *meaning-focused coping*, in which the person concentrates on deriving meaning from the stressful experience".

Keeping fit, "when you are well and healthy, when nutrition, exercise and sleep are adequate, it is much easier to cope with stress" - and learning "to lower the level of arousal... by relaxing muscles the message is received that all is well" are also positive techniques.

One of the most positive "methods people use to cope with painful situations... is humor! You feel things to the full... but you master them by turning it all into pleasure and fun!"

While dealing with stress it is important to deal with your physical, mental, and social well being. One should maintain one's health and learn to relax if one finds oneself under stress. Mentally it is important to think positive thoughts, value oneself, demonstrate good time management, plan and think ahead, and express emotions. Socially one should communicate with people and seek new activities. By following these simple strategies, one will have an easier time responding to stresses in one's life.

Negative techniques (maladaptive coping or non-coping)

While adaptive coping methods improve functioning, a maladaptive coping technique will just reduce symptoms while maintaining and strengthening the disorder. Maladaptive techniques are more effective in the short term rather than long term coping process.

Examples of maladaptive behavior strategies include dissociation, sensitization, safety behaviors, anxious avoidance, and escape (including self-medication).

These coping strategies interfere with the person's ability to unlearn, or break apart, the paired association between the situation and the associated anxiety symptoms. These are maladaptive strategies as they serve to maintain the disorder.

Dissociation is the ability of the mind to separate and compartmentalize thoughts, memories, and emotions. This is often associated with Post Traumatic Stress Syndrome.

Sensitization is when a person seeks to learn about, rehearse, and/or anticipate fearful events in a protective effort to prevent these events from occurring in the first place.

Safety behaviors are demonstrated when individuals with anxiety disorders come to rely on something, or someone, as a means of coping with their excessive anxiety.

Anxious avoidance is when a person avoids anxiety provoking situations by all means. This is the most common strategy.

Escape is closely related to avoidance. This technique is often demonstrated by people who experience panic attacks or have phobias. These people want to flee the situation at the first sign of anxiety.

Further examples

Further examples of coping strategies include:

- emotional or instrumental support
- self-distraction
- denial
- substance use
- self-blame
- behavioral disengagement
- religion
- indulgence in drugs or alcohol

Religious coping has been found to be the most common coping response, with one study reporting that 17% use religion as a coping response. Women mentioned religious coping more frequently than did men.

Many people think that meditation "not only calms our emotions, but...makes us feel more 'together'", as too can "the kind of prayer in which you're trying to achieve an inner quietness and peace".

Low-effort syndrome or **low-effort coping** refers to the coping responses of minority groups in an attempt to fit into the dominant culture. For example, minority students at school may learn to put in only minimal effort as they believe they are being discriminated against by the dominant culture.

Historical psychoanalytic theories

Otto Fenichel summarized early psychoanalytic studies of coping mechanisms in children as "a gradual substitution of actions for mere discharge reactions. the development of the function of judgement" - noting however that "behind all active types of mastery of external and internal tasks, a readiness remains to fall back on passive-receptive types of mastery."

In adult cases of "acute and more or less 'traumatic' upsetting events in the life of normal persons", Fenichel stressed that in coping, "in carrying out a 'work of learning' or 'work of adjustment', [s]he must acknowledge the new and less comfortable reality and fight tendencies towards regression, towards the misinterpretation of reality", though such rational strategies "may be mixed with relative allowances for rest and for small regressions and compensatory wish fulfillment, which are recuperative in effect".

Karen Horney

The healthy strategy she termed "Moving with" is that with which psychologically healthy people develop relationships. It involves compromise. In order to move with, there must be communication, agreement, disagreement, compromise, and decisions. The three other strategies she described - "Moving toward", "Moving against" and "Moving away" - represented neurotic, unhealthy strategies people utilize in order to protect themselves.

Horney investigated these patterns of neurotic needs (compulsive attachments). Everyone needs these things, but the neurotics need them more than the normal person. The neurotics might need these more because of difficulties within their lives. If the neurotic does not experience these needs, he or she will experience anxiety. The ten needs are:

1. Affection and approval, the need to please others and be liked
2. A partner who will take over one's life, based on the idea that love will solve all of one's problems
3. Restriction of one's life to narrow borders, to be undemanding, satisfied with little, inconspicuous; to simplify one's life
4. Power, for control over others, for a facade of omnipotence, caused by a desperate desire for strength and dominance
5. Exploitation of others; to get the better of them
6. Social recognition or prestige, caused by an abnormal concern for appearances and popularity
7. Personal admiration
8. Personal achievement.
9. Self-sufficiency and independence
10. Perfection and unassailability, a desire to be perfect and a fear of being flawed.

In Compliance, also known as "Moving toward" or the "Self-effacing solution", the individual moves towards those perceived as a threat to avoid retribution and getting hurt, "making any sacrifice, no matter how detrimental." The argument is, "If I give in, I won't get hurt." This means that: if I give everyone I see as a potential threat whatever they want, I won't be injured (physically or emotionally). This strategy includes neurotic needs one, two, and three.

In Withdrawal, also known as "Moving away" or the "Resigning solution", individuals distance themselves from anyone perceived as a threat to avoid getting hurt - "the 'mouse-hole' attitude...the security of unobtrusiveness." The argument is, "If I do not let anyone close to me, I won't get hurt." A neurotic, according to Horney desires to be distant because of being abused. If they can be the extreme introvert, no one will ever develop a relationship with them. If there is no one around, nobody can hurt them. These "moving away" people fight personality, so they often come across as cold or shallow. This is their strategy. They emotionally remove themselves from society. Included in this strategy are neurotic needs three, nine, and ten.

In Aggression, also known as the "Moving against" or the "Expansive solution", the individual threatens those perceived as a threat to avoid getting hurt. Children might react to parental in-differences by displaying anger or hostility. This strategy includes neurotic needs four, five, six, seven, and eight.

Gender differences

Gender differences in coping strategies are the ways in which men and women differ in managing psychological stress. There is evidence that males often develop stress due to their careers, whereas females often encounter stress due to issues in interpersonal relationships.Early studies indicated that "there were gender differences in the sources of stressors, but gender differences in coping were relatively small after controlling for the source of stressors"; and more recent work has similarly revealed "small differences between women's and men's coping strategies when studying individuals in similar situations."

In general, such differences as exist indicate that women tend to employ emotion-focused coping and the "tend-and-befriend" response to stress, whereas men tend to use problem-focused coping and the "fight-or-flight" response, perhaps because societal standards encourage men to be more individualistic, while women are often expected to be interpersonal. An alternative explanation for the aforementioned differences involves genetic factors. The degree to which genetic factors and social conditioning influence behavior, is the subject of ongoing debate.

Physiological basis of coping

Hormones also play a part in stress management. Cortisol, a stress hormone, was found to be elevated in males during stressful situations. In females, however, cortisol levels were decreased in stressful situations, and instead, an increase in limbic activity was discovered. Many researchers believe that these results underlie the reasons why men administer a fight-or-flightreaction to stress; whereas, females have a tend-and-befriend reaction. The "fight-or-flight" response activates the sympathetic nervous system in the form of increased focus levels, adrenaline, and epinephrine. Conversely, the "tend-and-befriend" reaction refers to the tendency of women to protect their offspring and relatives. Although these two reactions support a genetic basis to differences in behavior, one should not assume that in general females cannot implement "fight-or-flight" behavior or that males cannot implement "tend-and-befriend" behavior.

Emotional intelligence

Emotional intelligence (**EI**) is the ability to identify, assess, and control the emotions of oneself, of others, and of groups. It can be divided into *ability EI* and *trait EI*. Ability EI is usually measured using maximum performance tests and has stronger relationships with traditional intelligence, whereas trait EI is usually measured using self-report questionnaires and has stronger relationships with personality.

Criticisms have centered on whether EI is a real intelligence and whether it has incremental validity over IQ and the Big Five personality traits.

Definitions

Substantial disagreement exists regarding the definition of EI, with respect to both terminology and operationalizations. Currently, there are three main models of EI:

- Ability EI model
- Mixed models of EI (usually subsumed under trait EI)
- Trait EI model

Different models of EI have led to the development of various instruments for the assessment of the construct. While some of these measures may overlap, most researchers agree that they tap different constructs.

Ability model

Salovey and Mayer's conception of EI strives to define EI within the confines of the standard criteria for a new intelligence. Following their continuing research, their initial definition of EI was revised to "The ability to perceive emotion, integrate emotion to facilitate thought, understand emotions and to regulate emotions to promote personal growth."

The ability-based model views emotions as useful sources of information that help one to make sense of and navigate the social environment. The model proposes that individuals vary in their ability to process information of an emotional nature and in their ability to relate emotional processing to a wider cognition. This ability is seen to manifest itself in certain adaptive behaviors. The model claims that EI includes four types of abilities:

1. Perceiving emotions – the ability to detect and decipher emotions in faces, pictures, voices, and cultural artifacts—including the ability to identify one's own emotions. Perceiving emotions represents a basic aspect of emotional intelligence, as it makes all other processing of emotional information possible.
2. Using emotions – the ability to harness emotions to facilitate various cognitive activities, such as thinking and problem solving. The emotionally intelligent person can capitalize fully upon his or her changing moods in order to best fit the task at hand.
3. Understanding emotions – the ability to comprehend emotion language and to appreciate complicated relationships among emotions. For example, understanding emotions encompasses the ability to be sensitive to slight variations between emotions, and the ability to recognize and describe how emotions evolve over time.
4. Managing emotions – the ability to regulate emotions in both ourselves and in others. Therefore, the emotionally intelligent person can harness emotions, even negative ones, and manage them to achieve intended goals.

The ability EI model has been criticized in the research for lacking face and predictive validity in the workplace.

Measurement of the ability model

The current measure of Mayer and Salovey's model of EI, the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) is based on a series of emotion-based problem-solving items. Consistent with the model's claim of EI as a type of intelligence, the test is modeled on ability-based IQ tests. By testing a person's abilities on each of the four branches of emotional intelligence, it generates scores for each of the branches as well as a total score.

Central to the four-branch model is the idea that EI requires attunement to social norms. Therefore, the MSCEIT is scored in a consensus fashion, with higher scores indicating higher overlap between an individual's answers and those provided by a worldwide sample of respondents. The MSCEIT can also be expert-scored, so that the amount of overlap is calculated between an individual's answers and those provided by a group of 21 emotion researchers.

Although promoted as an ability test, the MSCEIT is unlike standard IQ tests in that its items do not have objectively correct responses. Among other challenges, the consensus scoring criterion means that it is impossible to create items (questions) that only a minority of respondents can solve, because, by definition, responses are deemed emotionally "intelligent" only if the majority of the sample has endorsed them. This and other similar problems have led some cognitive ability experts to question the definition of EI as a genuine intelligence.

Mixed models

The model introduced by Daniel Goleman focuses on EI as a wide array of competencies and skills that drive leadership performance. Goleman's model outlines five main EI constructs (for more details see "What Makes A Leader" by Daniel Goleman, best of Harvard Business Review 1998):

1. Self-awareness – the ability to know one's emotions, strengths, weaknesses, drives, values and goals and recognize their impact on others while using gut feelings to guide decisions.
2. Self-regulation – involves controlling or redirecting one's disruptive emotions and impulses and adapting to changing circumstances.
3. Social skill – managing relationships to move people in the desired direction
4. Empathy - considering other people's feelings especially when making decisions and
5. Motivation - being driven to achieve for the sake of achievement.

Goleman includes a set of emotional competencies within each construct of EI. Emotional competencies are not innate talents, but rather learned capabilities that must be worked on and can be developed to achieve outstanding performance. Goleman posits that individuals are born with a general emotional intelligence that determines their potential for learning emotional competencies. Goleman's model of EI has been criticized in the research literature as mere "pop psychology" (Mayer, Roberts, &Barsade, 2008).

Measurement of the Emotional Competencies (Goleman) model

Two measurement tools are based on the Goleman model:

1. The Emotional Competency Inventory (ECI), which was created in 1999, and the Emotional and Social Competency Inventory (ESCI), which was created in 2007.
2. The Emotional Intelligence Appraisal, which was created in 2001 and which can be taken as a self-report or 360-degree assessment.

Bar-On model of emotional-social intelligence (ESI)

Bar-On defines emotional intelligence as being concerned with effectively understanding oneself and others, relating well to people, and adapting to and coping with the immediate surroundings to be more successful in dealing with environmental demands. Bar-On posits that EI develops over time and that it can be improved through training, programming, and therapy. Bar-On hypothesizes that those individuals with higher than average EQs are in general more successful in meeting environmental demands and pressures. He also notes that a deficiency in EI can mean a lack of success and the existence of emotional problems. Problems in coping with one's environment are thought, by Bar-On, to be especially common among those individuals lacking in the subscales of reality testing, problem solving, stress tolerance, and impulse control. In general, Bar-On considers emotional intelligence and cognitive intelligence to contribute equally to a person's general intelligence, which then offers an indication of one's potential to succeed in life. However, doubts have been expressed about this model in the research literature (in particular about the validity of self-report as an index of emotional intelligence) and in scientific settings it is being replaced by the trait emotional intelligence (trait EI) model discussed below.

Measurement of the ESI model

The Bar-On Emotional Quotient Inventory (EQ-i), is a self-report measure of EI developed as a measure of emotionally and socially competent behavior that provides an estimate of one's emotional and social intelligence. The EQ-i is not meant to measure personality traits or cognitive capacity, but rather the mental ability to be successful in dealing with environmental demands and pressures. One hundred and thirty three items (questions or factors) are used to obtain a Total EQ (Total Emotional Quotient) and to produce five composite scale scores, corresponding to the five main components of the Bar-On model. A limitation of this model is that it claims to measure some kind of ability through self-report items (for a discussion, see Matthews, Zeidner, & Roberts, 2001). The EQ-i has been found to be highly susceptible to faking (Day & Carroll, 2008; Grubb & McDaniel, 2007).

Trait EI model

Soviet-born British psychologist Konstantin VasilyPetrides ("K. V. Petrides") proposed a conceptual distinction between the ability based model and a trait based model of EI and has been developing the latter over many years in numerous scientific publications. Trait EI is "a constellation of emotional self-perceptions located at the lower levels of personality." In lay terms, trait EI refers to an individual's self-perceptions of their emotional abilities. This definition of EI encompasses behavioral dispositions and self perceived abilities and is measured by self report, as opposed to the ability based model which refers to actual abilities, which have proven highly resistant to scientific measurement. Trait EI should be investigated within a personality framework. An alternative label for the same construct is trait emotional self-efficacy.

The trait EI model is general and subsumes the Goleman and Bar-On models discussed above. The conceptualization of EI as a personality trait leads to a construct that lies outside the taxonomy of human cognitive ability. This is an important distinction in as much as it bears directly on the operationalization of the construct and the theories and hypotheses that are formulated about it.

Measurement of the trait EI model

There are many self-report measures of EI, including the EQ-i, the Swinburne University Emotional Intelligence Test (SUEIT), and the Schutte EI model. None of these assess intelligence, abilities, or skills (as their authors often claim), but rather, they are limited measures of trait emotional intelligence. One of the more comprehensive and widely researched measures of this construct is the Trait Emotional Intelligence Questionnaire (TEIQue), which was specifically designed to measure the construct comprehensively and is available in many languages.

Criticisms of the theoretical foundation of EI

EI cannot be recognized as a form of intelligence

Goleman's early work has been criticized for assuming from the beginning that EI is a type of intelligence. Eysenck (2000) writes that Goleman's description of EI contains unsubstantiated assumptions about intelligence in general, and that it even runs contrary to what researchers have come to expect when studying types of intelligence:

"[Goleman] exemplifies more clearly than most the fundamental absurdity of the tendency to class almost any type of behaviour as an 'intelligence'... If these five 'abilities' define 'emotional intelligence', we would expect some evidence that they are highly correlated; Goleman admits that they might be quite uncorrelated, and in any case if we cannot measure them, how do we know they are related? So the whole theory is built on quicksand: there is no sound scientific basis."

Similarly, Locke (2005) claims that the concept of EI is in itself a misinterpretation of the intelligence construct, and he offers an alternative interpretation: it is not another form or type of intelligence, but intelligence—the ability to grasp abstractions—applied to a particular life domain: emotions. He suggests the concept should be re-labeled and referred to as a skill.

The essence of this criticism is that scientific inquiry depends on valid and consistent construct utilization, and that before the introduction of the term EI, psychologists had established theoretical distinctions between factors such as abilities and achievements, skills and habits, attitudes and values, and personality traits and emotional states. Thus, some scholars believe that the term *EI* merges and conflates such accepted concepts and definitions.

EI has little predictive value

Landy (2005) claimed that the few incremental validity studies conducted on EI have shown that it adds little or nothing to the explanation or prediction of some common outcomes (most notably academic and work success). Landy suggested that the reason why some studies have found a small increase in predictive validity is a methodological fallacy, namely, that alternative explanations have not been completely considered:

"EI is compared and contrasted with a measure of abstract intelligence but not with a personality measure, or with a personality measure but not with a measure of academic intelligence." Landy (2005)

Similarly, other researchers have raised concerns about the extent to which self-report EI measures correlate with established personality dimensions. Generally, self-report EI measures and personality measures have been said to converge because they both purport to measure personality traits. Specifically, there appear to be two dimensions of the Big Five that stand out as most related to self-report EI – neuroticism and extroversion. In particular, neuroticism has been said to relate to negative emotionality and anxiety. Intuitively, individuals scoring high on neuroticism are likely to score low on self-report EI measures.

The interpretations of the correlations between EI questionnaires and personality have been varied. The prominent view in the scientific literature is the Trait EI view, which re-interprets EI as a collection of personality traits.

Criticisms of measurement issues

Ability EI measures measure conformity, not ability

One criticism of the works of Mayer and Salovey comes from a study by Roberts et al. (2001), which suggests that the EI, as measured by the MSCEIT, may only be measuring conformity. This argument is rooted in the MSCEIT's use of consensus-based assessment, and in the fact that scores on the MSCEIT are negatively distributed (meaning that its scores differentiate between people with low EI better than people with high EI).

Ability EI measures measure knowledge (not actual ability)

Further criticism has been leveled by Brody (2004), who claimed that unlike tests of cognitive ability, the MSCEIT "tests knowledge of emotions but not necessarily the ability to perform tasks that are related to the knowledge that is assessed". The main argument is that even though someone knows how he should behave in an emotionally laden situation, it doesn't necessarily follow that the person could actually carry out the reported behavior.

Self-report measures are susceptible to faking

More formally termed socially desirable responding (SDR), faking good is defined as a response pattern in which test-takers systematically represent themselves with an excessive positive bias (Paulhus, 2002). This bias has long been known to contaminate responses on personality inventories (Holtgraves, 2004; McFarland & Ryan, 2000; Peebles & Moore, 1998; Nichols & Greene, 1997; Zerbe&Paulhus, 1987), acting as a mediator of the relationships between self-report measures (Nichols & Greene, 1997; Ganster et al., 1983).

It has been suggested that responding in a desirable way is a response set, which is a situational and temporary response pattern (Pauls&Crost, 2004; Paulhus, 1991). This is contrasted with a response style, which is a more long-term trait-like quality. Considering the contexts some self-report EI inventories are used in (e.g., employment settings), the problems of response sets in high-stakes scenarios become clear (Paulhus& Reid, 2001).

There are a few methods to prevent socially desirable responding on behavior inventories. Some researchers believe it is necessary to warn test-takers not to fake good before taking a personality test (e.g., McFarland, 2003). Some inventories use validity scales in order to determine the likelihood or consistency of the responses across all items.

NICHD pushes for consensus

The National Institute of Child Health and Human Development has recognized the divide on the topic of emotional intelligence explains the need for the mental health community to agree on some guidelines to describe good mental health and positive mental living conditions. In their section, "Positive Psychology and the Concept of Health," they explain. "Currently there are six competing models of positive health, which are based on concepts such as being above normal, character strengths and core virtues, developmental maturity, social-emotional intelligence, subjective well-being, and resilience. But these concepts define health in philosophical rather than empirical terms. Dr. [Lawrence] Becker suggested the need for a consensus on the concept of positive psychological health..."

EI, IQ and job performance

Research of EI and job performance shows mixed results: a positive relation has been found in some of the studies, in others there was no relation or an inconsistent one. This led researchers Cote and Miners (2006) to offer a compensatory model between EI and IQ, that posits that the association between EI and job performance becomes more positive as cognitive intelligence decreases, an idea first proposed in the context of academic performance (Petrides, Frederickson, &Furnham, 2004). The results of the former study supported the compensatory model: employees with low IQ get higher task performance and organizational citizenship behavior directed at the organization, the higher their EI.

A meta-analytic review by Joseph and Newman also revealed that both Ability EI and Trait EI tend to predict job performance much better in jobs that require a high degree of emotional labor (where 'emotional labor' was defined as jobs that require the effective display of positive emotion). In contrast, EI shows little relationship to job performance in jobs that do not require emotional labor. In other words, emotional intelligence tends to predict job performance for emotional jobs only.

EI, self-esteem, and drug use

A 2012 study cross examined emotional intelligence, self-esteem, and marijuana dependence. Out of a sample of 200, 100 of which were dependent on cannabis and the other 100 emotionally healthy, the dependent group scored exceptionally low on EI when compared to the control group. They also found that the dependent group also scored low on self-esteem when compared to the control.

Another study in 2010 examined whether or not low levels of EI had a relationship with the degree of drug and alcohol addiction. In the assessment of 103 residents in a drug rehabilitation center, they examined their EI along with other psychosocial factors in a 1 month interval of treatment. They found that participants' EI scores improved as their levels of addiction lessened as part of their treatment.

Emotional literacy

The term **emotional literacy** has often been used in parallel to, and sometimes interchangeably with, the term "emotional intelligence". However, there are important differences between the two.

Emotional Literacy is a term that was used first by Claude Steiner (1997) [1] who says:

> Emotional Literacy is made up of ‘the ability to understand your emotions, the ability to listen to others and empathise with their emotions, and the ability to express emotions productively. To be emotionally literate is to be able to handle emotions in a way that improves your personal power and improves the quality of life around you. Emotional literacy improves relationships, creates loving possibilities between people, makes co-operative work possible, and facilitates the feeling of community.

He breaks emotional literacy into 5 parts:

1. Knowing your feelings.
2. Having a sense of empathy.
3. Learning to manage our emotions.
4. Repairing emotional damage.
5. Putting it all together: emotional interactivity.

Having its roots in counseling, it is a social definition that has interactions between people at it heart. According to Steiner emotional literacy is about understanding your feelings and those of others to facilitate relationships, including using dialogue and self-control to avoid negative arguments. The ability to be aware and read other people’s feelings enables one to interact with them effectively so that powerful emotional situations can be handled in a skillful way. Steiner calls this "emotional interactivity". Steiner’s model of emotional literacy is therefore primarily about dealing constructively with the emotional difficulties we experience to build a sound future. He believes that personal power can be increased and relationships transformed. The emphasis is on the individual, and as such encourages one to look inward rather than to the social setting in which an individual operates.

British context

In Britain the term ‘emotional literacy’ is often used and has developed, building on the work of Steiner and Goleman as a social construction - as opposed to the more individualistic ‘emotional intelligence’ with the attempts to measure it as if emotions were measurable in a relatively rational way. Educators did not like the way that ‘emotional intelligence’ focused so much on the individual and there were clear attempts to avoid the narrow EQ tests that were in use for two reasons:

1. The idea of an EQ test had resonance with discredited psychometric measures of intelligence such as IQ tests.
2. People were also concerned with the way that pupils could be subject to even more control through the introduction of emotional intelligence into the curriculum.

The ability to understand ourselves and other people, and in particular to be aware of, understand, and use information about the emotional states of ourselves and others with competence. It includes the ability to understand, express and manage our own emotions, and respond to the emotions of others, in ways that are helpful to ourselves and others.

Similarly, the organization Antidote defined emotional literacy as: the practice of interacting with others in ways that build understanding of our own and others’ emotions, then using this understanding to inform our actions.

These definitions acknowledge both the individual and other people and so inter-personal relationships and the need for dialogue are included. Sharp has taken a broad approach to emotional literacy in a Local Education Authority (LEA) where he considers its development is important for teachers as well as pupils.

Emotional intelligence/literacy in education

In general, most of the criticisms of courses to promote pupils' emotional development have been directed at those that develop emotional intelligence. For example, there are the courses developed in the USA and Britain. The critiques of these courses include that:

1. Emotional intelligence/literacy courses can lead to more control over pupils with them being more defined in their behavior.
2. The assessment of emotional intelligence/literacy can lead to pupils being labeled as inadequate.
3. Emotional intelligence courses can locate problems in the individual that are also a function of how society is organised.

4. When courses are taught it is often assumed that pupils are emotionally ready to deal with what is on the curriculum, whereas they may not be.
5. The whole agenda of teaching emotional development can lead to pupils being seen as deficit in emotional control and so can depress their potential to have faith in future goals
6. Emotional intelligence courses have moral and ethical aspects that are not made explicit.

Matthews has tried to avoid some of the difficulties. For example, his strategies for the classroom mean that pupils only develop when, and in what areas, they are able. Emotional development between the genders has been the focus of research with a small reference to 'race'. But these are limited in strategies and do not tackle fully the critiques.

Emotional self-regulation

Emotional self-regulation, also known as **emotion regulation** (at times abbreviated to **ER** when unambiguous) means the various consciousskills and unconscious processes a person uses, and the competences a person engages, to monitor and manage their experience and expression of, and responses to, emotion. Technically it has been defined both in terms of *change in emotion* (maintaining, changing, monitoring and modulating emotional stance emotional reactions, for example in light of cultural norms or desired goals), and more recently in terms of *activity and processes engaged prior to change of emotion*; there is continuing debate among experts as to the better definition. A simple definition was offered by Grolnick*et al* (1996, 2005) as broadly "the set of processes involved in initiating, maintaining and modulating emotional responsiveness, both positive and negative".

Emotional regulation is a complex process that involves initiating, inhibiting, or modulating one's state or behaviour in a given situation – for example the subjective experience (feelings), cognitive responses (thoughts), emotion-related physiological responses (for example heart rate or hormonal activity), and emotion-related behaviour (bodily actions or expressions). Functionally, emotional regulation can also refer to processes such as the tendency to focus one's attention to a task and the ability to suppress inappropriate behavior under instruction.[3]

Emotional regulation is a highly significant function in human life. Everyday people are continually exposed to an extreme variety of potentially arousing stimuli. Inappropriate, extreme or unchecked emotional reactions to such stimuli would impede functional fit within society, therefore at a practical level people must engage in some form of emotion regulation almost all of the time.

People are usually flexible in dealing to dealing with emotions and can effectively manage more extreme emotional states, but it is not uncommon for people to lack basic skills or awareness of emotional regulation at a cognitive level, or be impaired in usual regulation due to clinical or developmental reasons.] For example, a number of brain injuries, traumas, and developmental, psychological and psychiatric conditions can also lead to poor emotional regulation.] Such people are at times described as **poor self-regulators**. They may be people who get angry and take their frustration out on other people or themselves, and may also often unknowingly exhibit facial expressions that seem contrary to what is normative in a given situation. Poor self regulators are often deemed to be socially awkward because they are unable to control their (happy or sad) emotions properly.

Importance

Humans are highly attuned to detecting the appropriateness of (various) facial expressions. They easily notice inconsistencies, and form judgments accordingly. People intuitively mimic facial expressions and can detect when behavior is out of the ordinary. When one wishes to mask true emotion, and thereby control what others see, one needs to be able to properly regulate emotion and facial expression.

Humans have control over our facial expressions both consciously and unconsciously. This is why a young child will look utterly devastated when receiving a pair of underwear on Christmas morning, but a teenager is often able to muster a weak grin and even say thank you when that is not what they are truly feeling. He has learned the importance of masking his emotions in order to achieve a goal.

Emotional self-regulation focuses on *providing the appropriate emotion in the appropriate circumstance*. If someone laughs at a funeral people will take notice of the odd behavior. If a man cries while watching something with his friends, he will be judged. If a woman acts cold and distant to her crying child, her friends will be taken aback. These are all instances when emotion regulation would be proper precautionary techniques, by knowing the appropriate reaction to a situation that won't arouse suspicions. Regulating emotions can also be used in a way to calm one's self down, or to refrain from contentious behavior or getting into a fight. ER is also a way to help relieve stress, one example: one might write in a journal about the significant parts of one's day.

Healthy self-regulation reflects *the capacity to tolerate the sensations of distress that accompany an* ***unmet need***. The first time an infant feels hunger, she feels discomfort, then distress and then she cries – until an attuned adult responds. After thousands of cycles of hunger, discomfort, distress, response, and satisfaction, the child (usually) learns that this feeling of discomfort, even distress, will soon pass. An adult will come.

The attuned, responsive teacher *helps the child build in the capacity to put a moment between the impulse and the action*. Therefore, young children who have yet to become successful self-regulators will yell and scream when they do not get their way over any number of things, for instance, taking turns.

Over time children normally learn that everyone will get a turn, they just may have to wait a little longer than they'd like. The absence of yelling or throwing a fit in situations like these, is indicative of a child who has learned to 'self-regulate'. A still more complex instance of emotional self- regulation would be a teenager who masks disappointment (over a birthday gift that he or she did not like) with feigned gratitude.

At this point, the teenager has regulated his emotions to avoid hurting his parents feelings. In addition to the smile and the "thank you", this involves a complex cognitive response. As one gets older one generally learns the advantages of appropriately self-regulating one's behaviors. Proper emotion regulation can help us mask our intentions or feelings and help us achieve our goals in the social realm. Proper regulation can also serve as a way to cool down after an argument. A failure to properly self-regulate can be associated with ineptitude, ingratitude and can be negatively correlated with 'liking' and 'acceptance' by peers.

In agitated states

There are numerous instances of emotional self-regulation when in an agitated state. This would certainly be true of the 3 year old child who cries when he does not get what he wants. It would also be true of the seven year old who waits patiently to go to the toy section of the department store, while his mother looks at sheets.

The seven year old has learned what the 3 year old has not. He has learned to regulate and control his frustration because he knows that if he does he will be rewarded, this is an example of a *learned behavior*.

Children who demonstrate knowledge of learned behaviors are more likely to maintain attention and composure when working on difficult tasks. Children who can’t properly regulate their emotions run the risk of becoming social pariahs. Such social ineptitude is caused by continual and sustained absence of proper ER and is accumulative.

How people deal with the emotion of anger is most revealing. People who properly regulate their emotions when they are angry may choose to let their frustration out in healthy ways; like exercising, or writing a letter about how they feel. Poor regulators don’t. Poor regulators tend to not consider such options as good enough and therefore lash out (in sometimes violent manners) because they lack the ability/skills to state how they feel in any other way.

Methods

Some people utilize meditation and other stress reduction techniques such as *mindfulness* to help calm and soothe themselves and to maintain or regain composure, for some prayer and religious reflection are used in similar fashion.

A commonly suggested method for calming younger people is the 'count to 20' – while slowly and taking deep breaths—technique. Sometimes a so-called 'time out' (or a long walk, see 'Exercise') is necessary or helpful to cool the nerves/emotions.

Some people learn how to control their facial expressions and have an internal cooling down method. Sometimes all it takes is a little common sense to put feelings into perspective and overcome the bad experience.

Self-regulation of emotional stress

According to Yu. V. Scherbatykh, emotional stress in situations like school examinations can be reduced by engaging in self-regulating activities prior to the task being performed. To study the influence of self-regulation on mental and physiological processes under exam stress, Shcerbatykh conducted a test with an experimental group of 28 students (of both sexes) and a control group of 102 students (also of both sexes).

In the moments before the examination, situational stress levels were raised in both groups from what they were in quiet states. In the experimental group, participants engaged in three self-regulating techniques (concentration on respiration, general body relaxation, and the creation of a mental image of successfully passing the examination). During the examination, the anxiety levels of the experimental group were lower than that of the control group. Also, the percent of unsatisfactory marks in the experimental group was 1.7 times less than in the control group. From this data, Scherbatykh concluded that the application of self-regulating actions before examinations helps to significantly reduce levels of emotional strain, which can help lead to better performance results.

Shaping

There are three possibilities for how a child’s self-regulation is formed. Some theorists argue that it is formed based solely on the child and how good the child is at emotionally self-regulating. Other theorists believe that our ability to regulate our emotions and behaviors are formed during school time. Many theorists claim that the ability is developed as early as the preschool years. They believe that the start of formal schooling is a critical point at which a child’s performance at school has lasting effects that matter for their academic success. The last point argued by theorists is that emotion regulation is determined by the child’s socioeconomic status. Poverty is argued to have a negative impact on young children's emotional development by increasing infants’ risk of exposure to a set of prenatal and perinatal factors that negatively affect their neurological, attentional, and affective development. It is necessary to note that most young children do not develop emotional and behavioral difficulty.

Effects of low self regulation

With a failure in emotional regulation there is a rise in psychosocial and emotional dysfunctions caused by traumatic experiences due to an inability to regulate emotions. These traumatic experiences typically happen in grade school and are sometimes associated with bullying. Children who can’t properly self-regulate express their volatile emotions in a variety of ways, including screaming if they don't have their way, lashing out with their fists, or bullying other children. Such behaviours often elicit negative reactions from the social environment, which, in turn, can exacerbate or maintain the original regulation problems over time, a process termed cumulative continuity. These children are more likely to have conflict based relationships with their teachers and other children. This can lead to more severe problems such as an impaired ability to adjust to school and predicts school dropout many years later. Children who fail to properly self-regulate grow as teenagers with more emerging problems. Their peers begin to notice this “immaturity”, and these children are often excluded from social groups and teased and harassed by their peers. This “immaturity” certainly causes some teenagers to become social pariahs in their respective social groups, causing them to lash out in angry and potentially violent ways. Being teased or being a pariah in your teenage years is especially damaging and could lead to a dysfunctional future, which is why it is extremely important to inculcate emotional self-regulation in children as early as possible.

In adults

There are many categories through which people (primarily adults) can control or regulate their emotions, which can be further divided into other subcategories. There are also specific points before and after the emotion has been triggered. The two main strategies one can employ to regulate their emotions are:

1. Antecedent-focused strategies and
2. Response focused strategies.

Antecedent-Focused Strategies refer to the things one does before they experience a certain emotion and can influence their behavior and physiological responses. This is basically when a person knows that certain stimuli can trigger negative emotions and chooses to avoid them. Response Focused strategies refers to what happens after the emotion has already been triggered and what the person might do to conceal the said emotion. As stated earlier, there are different stages when a person can regulate an emotion as they develop, five of them to be exact:

1. Selection of the Situation
2. Modification of the Situation
3. Deployment of Attention
4. Change of Cognition
5. Response Modulation

The selection of the situation refers to the situation the person chooses to be involved in that might cause her to react emotionally. Next, modification of the situation is when the circumstances of the situation can be made to soften its emotional impact. Thirdly, Deployment of Attention is the stage where a person chooses to focus on other parts of the situation at hand. Change of cognition is the way the person decides to interpret the situation like looking at the advantages of the situation or even putting it in context of other bigger events (i.e., looking at the bigger picture). Lastly, response modulation is the way a person reacts after the situation has already occurred by trying to sway them. Obviously, selection of a situation to change of cognition are associated with antecedent-focused strategies while only response modulation is a response focused strategy.

Strategies

There are many strategies one can use to regulate their emotions; two of them are

1. Reappraisal and
2. Emotional Suppression (or Expressive Suppression or just Suppression).

Reappraisal is when a person changes the way they think about a specific emotion in order to lessen its impact. Reappraisal comes much earlier in the Emotional Regulation process, while

Suppression is a means to restrain any external signs of the emotion and occurs after the emotion has happened. These two methods of concealing emotions have different consequences; the affective consequence, cognitive consequence and social consequence.

In Reappraisal no negative Affective effects are present, but there are decreased expressive behavior but no “observable” physiological consequences. Affective Consequences on Suppression are a different matter. Increased physiological activation (i.e. during a study, the suppressed individuals has more blood vessel constriction than the control group.) and also decreased expressive behavior (similar to Reappraisal).

It should also be mentioned that people using Reappraisal show no signs of disgust while the Suppressed group exhibited disgust. The Cognitive Consequences of Reappraisal was that it had no effects on memory at all, the memories of people that use Reappraisal stayed the same. The effects of people utilizing suppression were mostly negative.

The Social Consequences of each approach are markedly different. The social consequences of the reappraisal approach were much more positive than those of the suppression approach. In Reappraisal there was a decrease in negative expressive behavior and it didn’t affect positive expressive behavior negatively and at times it even increased it People who have utilized Suppression have been shown to exhibit lack of concern or interest in conversations and lack of responsiveness. Suppressors also tended to exhibit signs linked to lying and Interpersonal Deception in that there is a containment of true feelings. While in suppression, the positive and negative expressive behavior both decreased. Another disadvantage or consequence of Suppression is it *takes a lot of energy that could be used to do other things*, which might cause distraction on to other things people could be concentrating on.

Research has shown that reappraisal is associated with increased well-being, while suppression is associated with decreased well-being.

Affect

As people age, their affect – the way they react to emotions – also changes, either positively or negatively. Studies show that positive affect increases as a person grows from adolescence to the mid 70s. Negative affect, on the other hand, decreases until the mid 70s. Studies also show that emotions differ in adulthood particularly affect (positive or negative). Although some studies found that affect decreases with age, this one concluded that adults in their middle age experience more positive affect and less negative affect than younger adults. Positive affect was also higher for men than women while the negative affect was higher for women than it was for men and also for single people. A reason that older people – middle adulthood – might have less negative affect is because they have overcome, "the trials and vicissitudes of youth, they may increasingly experience a more pleasant balance of affect, at least up until their mid-70s". Positive affect might rise during middle age but towards the later years of life – the 70s – it begins to decline while negative affect also does the same. This might be due to failing health, reaching the end of their lives and the death of friends and relatives.

Affective chronometry

In addition to baseline levels of positive and negative affect, studies have found individual differences in the time-course of emotional responses to stimuli. The temporal dynamics of emotional regulation, also known as affective chronometry, includes two key variables in the emotional response process: rise time to peak emotional response, and recovery time to baseline levels of emotion.[4] Studies of affective chronometry typically separate positive and negative affect into distinct categories, as previous research has shown (despite some correlation) the ability of humans to experience changes in these categories independently of one another.[12] Affective chronometry research has been conducted on clinical populations with anxiety, mood, and personality disorders, but is also utilized as a measurement to test the effectiveness of different therapeutic techniques (including mindfulness training) on emotional dysregulation.

Exercise

Exercise is a widespread method for emotional regulation that works for almost everyone. Exercise has been shown to have definite cognitive effects by altering brain chemistry. Animal studies have shown that norepinephrine, a neurotransmitter involved in emotion, is altered in the frontal cortex and hippocampus after exercising. The change in norepinephrine levels in the brain due to exercise seems to have an effect on mood similar to those of antidepressants. Exercise has also been shown to help individuals deal with stress by "acting on the neurohormones that govern the stress response". This effect on the neurohormones increases one's threshold for stress, making the stresses of life seem more manageable.

The changes in brain chemistry due to exercise have important implications for the management of mental health disorders. In some instances, exercise has been shown to be more effective in the treatment of depression than medication. One study that analyzed longitudinal gains over a two-month period after exercising period produced results with even more positive implications for the use of exercise in emotional regulation. After this two-month period, individuals indicated they felt less emotional distress and experienced a decrease in perceived stress. An increase in the ability to control behavior was also shown, with behaviors ranging from cigarette smoking to making appointments on time, all showing improvement.

Decision making

Identification of our emotional self-regulating process can facilitate in the decision making process. Current literature on emotion regulation identifies that humans characteristically make efforts in controlling emotion experiences. There is then a possibility that our present state emotions can be altered by emotional regulation strategies resulting in the possibility that different regulation strategies could have different decision implications.

Miniaturization of expression (in solitary conditions)

In solitary conditions, emotional regulation can include a miniaturization effect, in which common outward expressive patterns are replaced with toned down versions of expression. Unlike other situations, in which physical expression (and its regulation) serve a social purpose (i.e. conforming to display rules or revealing emotion to outsiders), solitary conditions require no reason for emotions to be outwardly expressed (although intense levels of emotion can bring out noticeable expression anyway). The idea behind this is that as people get older, they learn that the purpose of outward expression (to appeal to other people), is not necessary in situations in which there is no one to appeal to. As a result, the level of emotional expression can be lower in these solitary situations.

Empathy

Empathy is the capacity to recognize emotions that are being experienced by another sentient or fictional being. One may need to have a certain amount of empathy before being able to experience compassion. The English word was coined in 1909 by Edward B. Titchener as an attempt to translate the German word "*Einfühlungsvermögen*", a new phenomenon explored at the end of 19th century mainly by Theodor Lipps. It was later re-translated into the German language as "*Empathie*", and is still in use there.

Etymology

The English word is derived from the Greek word ἐμπάθεια (*empatheia*), "physical affection, passion, partiality" which comes from ἐν (*en*), "in, at" + πάθος (*pathos*), "passion" or "suffering". The term was adapted by Hermann Lotze and Robert Vischer to create the German word *Einfühlung* ("feeling into"), which was translated by Edward B. Titchener into the English term empathy.

Alexithymia from the Ancient Greek words λέξις (*lexis*) and θυμός (*thumos*) modified by an alpha-privative—literally "without words for emotions"—is a term to describe a state of deficiency in understanding, processing, or describing emotions in oneself.

Note that in modern Greek the word empathy (εμπάθεια) translates as "hatred" or "spitefulness" (a situation of causing passion, rather than mutual relation to one's passion); ενσυναίσθηση is the correct modern equivalent of empathy.

Definition

Empathy has many different definitions. These definitions encompass a broad range, from caring for other people and having a desire to help them, to experiencing emotions that match another person's emotions, to knowing what the other person is thinking or feeling, to blurring the line between self and other.

Since empathy involves understanding the emotional states of other people, the way it is characterized is derivative of the way emotions themselves are characterized. If, for example, emotions are taken to be centrally characterized by bodily feelings, then grasping the bodily feelings of another will be central to empathy. On the other hand, if emotions are more centrally characterized by a combination of beliefs and desires, then grasping these beliefs and desires will be more essential to empathy. The ability to imagine oneself as another person is a sophisticated imaginative process. However, the basic capacity to recognize emotions is probably innate and may be achieved unconsciously. Yet it can be trained and achieved with various degrees of intensity or accuracy.

Empathy necessarily has a "more or less" quality. The paradigm case of an empathic interaction involves the communication of the recognition of the significance of another person's ongoing intentional actions and associated emotional states and personal characteristics in a manner in which that person can tolerate being recognized.

The human capacity to recognize the bodily feelings of another is related to one's imitative capacities and seems to be grounded in the innate capacity to associate the bodily movements and facial expressions one sees in another with the proprioceptive feelings of producing those corresponding movements or expressions oneself. Humans seem to make the same immediate connection between the tone of voice and other vocal expressions and inner feeling.

Empathy is distinct from sympathy, pity, and emotional contagion. Sympathy or empathic concern is the feeling of compassion or concern for another, the wish to see them better off or happier. Pity is feeling that another is in trouble and in need of help as they cannot fix their problems themselves, often described as "feeling sorry" for someone. Emotional contagion is when a person (especially an infant or a member of a mob) imitatively "catches" the emotions that others are showing without necessarily recognizing this is happening.

Emotional and cognitive empathy

Empathy can be divided into two major components:

- **Emotional empathy**, also called **affective empathy**: the drive to respond with an appropriate emotion to another's mental states. Our ability to empathize emotionally is supposed to be based on emotional contagion: being affected by another's emotional or arousal state.
- **Cognitive empathy**: the drive to identify another's mental states. The term cognitive empathy and theory of mind are often used synonymously.

Although science has not yet agreed upon a precise definition of these constructs, there is consensus about this distinction. There is a difference in disturbance of affective versus cognitive empathy in different psychiatric disorders. Psychopathy, schizophrenia, depersonalization and narcissism are characterized by impairments in emotional empathy but not in cognitive empathy, whereas autism, bipolar disorder and borderline traits are associated with deficits in cognitive empathy but not in emotional empathy. Also in people without mental disorders, the balance between emotional and cognitive empathy varies. A meta-analysis of recent fMRI studies of empathy confirmed that different brain areas are activated during affective–perceptual empathy and cognitive–evaluative empathy. Also a study with patients with different types of brain damage confirmed the distinction between emotional and cognitive empathy. Specifically, the inferior frontal gyrus appears to be responsible for emotional empathy, and the ventromedial prefrontal gyrus seems to mediate cognitive empathy.

Emotional empathy can be subdivided into:

- Personal distress: the inclination to experience self-centered feelings of discomfort and anxiety in response to another's suffering.
- **Empathic concern**: the inclination to experience of sympathy and compassion towards others in response to their suffering.

There is no consensus regarding the question if personal distress is a basic form of empathy or if it falls outside of empathy. There is a developmental aspect to this subdivision. Infants respond to the distress of others by getting distressed themselves; only when they are 2 years old they start to respond in other-oriented ways, trying to help, comfort and share.

Development

By the age of two years, children normally begin to display the fundamental behaviors of empathy by having an emotional response that corresponds with another person. Even earlier, at one year of age, infants have some rudiments of empathy, in the sense that they understand that, just like their own actions, other people's actions have goals. Sometimes, toddlers will comfort others or show concern for them at as early an age as two. Also during the second year, toddlers will play games of falsehood or "pretend" in an effort to fool others, and this requires that the child know what others believe before he or she can manipulate those beliefs.

According to researchers at the University of Chicago who used functional magnetic resonance imaging (fMRI), children between the ages of 7 and 12 years appear to be naturally inclined to feel empathy for others in pain. Their findings are consistent with previous fMRI studies of pain empathy with adults. The research also found additional aspects of the brain were activated when youngsters saw another person intentionally hurt by another individual, including regions involved in moral reasoning.

Despite being able to show some signs of empathy, such as attempting to comfort a crying baby, from as early as 18 months to two years, most children do not show a fully fledgedtheory of mind until around the age of four. Theory of mind involves the ability to understand that other people may have beliefs that are different from one's own, and is thought to involve the cognitive component of empathy. Children usually become capable of passing "false belief" tasks, considered to be a test for a theory of mind, around the age of four. Individuals with autism often find using a theory of mind very difficult (e.g. Baron-Cohen, Leslie &Frith, 1988; the Sally-Anne test).

Empathetic maturity is a cognitive structural theory developed at the Yale University School of Nursing and addresses how adults conceive or understand the personhood of patients. The theory, first applied to nurses and since applied to other professions, postulates three levels that have the properties of cognitive structures. The third and highest level is held to be a meta-ethical theory of the moral structure of care. Those adults operating with level-III understanding synthesize systems of justice and care-based ethics.

Neurological basis

Research in recent years has focused on possible brain processes underlying the experience of empathy. For instance, functional magnetic resonance imaging (fMRI) has been employed to investigate the functional anatomy of empathy. These studies have shown that observing another person's emotional state activates parts of the neuronal network involved in processing that same state in oneself, whether it is disgust, touch, or pain. The study of the neural underpinnings of empathy has received increased interest following the target paper published by Preston and Frans de Waal, following the discovery of mirror neurons in monkeys that fire both when the creature watches another perform an action as well as when they themselves perform it. In their paper, they argued that attended perception of the object's state automatically activates neural representations, and that this activation automatically primes or generates the associated autonomic and somatic responses (idea of perception-action-coupling), unless inhibited. This mechanism is similar to the common coding theory between perception and action. Another recent study provides evidence of separate neural pathways activating reciprocal suppression in different regions of the brain associated with the performance of "social" and "mechanical" tasks. These findings suggest that the cognition associated with reasoning about the "state of another person's mind" and "causal/mechanical properties of inanimate objects" are neurally suppressed from occurring at the same time.

Anger and distress

Empathic anger is an emotion, a form of empathic distress. Empathic anger is felt in a situation where someone else is being hurt by another person or thing. It is possible to see this form of anger as a pro-social emotion.

Empathic anger has direct effects on both helping and punishing desires. It can be divided to trait and state empathic angers.

The relationship between empathy and anger response towards another person has also been investigated, with dispositional perspective taking found to be significantly negatively related to anger arousal (i.e. the higher a person's perspective taking ability, the less angry they were in response to a provocation). Empathic concern did not, however, significantly predict anger response, and higher personal distress was associated with increased anger.

Distress

Empathic distress is feeling the perceived pain of another person. This feeling can be transformed into empathic anger, feelings of injustice, or guilt. These emotions can be perceived as pro-social, and some say they can be seen as motives for moral behavior.

Atypical empathic response

Atypical empathic responses are found in people on the autism spectrum, some personality disorders such as narcissistic personality disorder and borderline personality disorder, psychopathy, schizophrenia, depersonalization, bipolar disorder[19] and conduct disorder.[48]

Autism spectrum

The interaction between empathy and the autism spectrum is a complex and ongoing field of research. Several different factors are proposed to be at play here.

Alexithymia

Research suggests that 85% of ASD individuals have alexithymia, which involves not just the inability to verbally *express* emotions, but specifically the inability to *identify* emotional states in self or others. According to recent fMRI studies the syndrome of alexithymia, a condition in which an individual is rendered incapable of recognising and articulating emotional arousal in self or others, is responsible for a severe lack of emotional empathy. The lack of empathic attunement inherent to alexithymic states may reduce quality and satisfaction of relationships. Recently, a study has shown that high-functioning adults with autism appear to have a range of responses to music similar to that of neurotypical individuals, including the deliberate use of music for mood management. Clinical treatment of alexithymia could involve using a simple associative learning process between musically induced emotions and their cognitive correlates.

Theory of mind

Previous studies have suggested that autistic individuals have an impaired theory of mind (ToM). ToM and empathy are often used synonymously, but these capacities represent different abilities that rely on different neuronal circuitry. ToM is the ability to understand mental states such as intentions, goals and beliefs, and relies on structures of the temporal lobe and the pre-frontal cortex. However, empathy is the ability to share the feelings of others and relies on the sensorimotor cortices as well as limbic and para-limbic structures. Francesca Happe showed that autistic children who demonstrate a lack of theory of mind (cognitive empathy) lack theory of mind for self as well as for others.

Mirror neuron activity

One study found that, relative to typically developing children, high-functioning children with autism showed reduced mirror neuron activity in the brain's inferior frontal gyrus (pars opercularis) while imitating and observing emotional expressions. EEG evidence revealed that there was significantly greater mu suppression in the sensorimotor cortex of autistic individuals. Activity in this area was inversely related to symptom severity in the social domain, suggesting that a dysfunctional mirror neuron system may underlie the social deficits observed in autism.

Cognitive versus affective empathy

Rogers' research, following the distinction between cognitive empathy and affective empathy, suggests that people with Asperger syndrome have less ability to ascertain others' feelings (in terms of theory of mind), but demonstrate equal empathy when they are aware of others' states of mind (in terms of affect)
Regarding the subdivision of emotional empathy into personal distress and empathic concern, individuals with an autism spectrum disorder (ASD) self-report lower levels of empathic

concern, and they show less or absent comforting responses toward someone who is suffering. However, individuals with ASD also report equal or higher levels of personal distress compared to controls. The combination of reduced empathic concern and increased personal distress may lead to the overall reduction of empathy in ASD. Social psychology research found that when a person is overwhelmed by his or her own feelings when observing a person who needs help, he or she is unlikely to engage in comforting or helping others.

"As regards the failure of empathic response, it would appear that at least some people with autism are oversensitive to the feelings of others rather than immune to them, but cannot handle the painful feed-back that this initiates in the body, and have therefore learnt to suppress this facility."

Sex differences and autism

It has been shown that males are generally less empathetic than females. The "Extreme Male Brain" (EMB) theory proposes that individuals on the autistic spectrum are characterized by impairments in empathy due to sex differences in the brain: specifically, people with autism-spectrum conditions show an exaggerated male profile. A study showed that some aspects of autistic neuroanatomy seem to be extremes of typical male neuroanatomy. One of the main questions that needs to be answered is: if autism is an extreme of the male brain, then is it the result of elevated fetal testosterone (FT), abnormalities in androgen receptors or the genes controlling FT, or sexually dimorphic gene expression unrelated to FT? Future research will need to map all aspects of autistic neuroanatomy that are hypermasculinized as well as consider how to explain those aspects that are not. If the EMB theory does apply to autism, and the male brain is a risk factor for autism, this may explain the lower prevalence in females. However, another study has suggested that Alexithymia, a co-morbid condition prevalent in up to 85% of people on the Autism Spectrum, is linked to the empathy impairment instead of Autism.

Personality disorders

Atypical empathy is a trait of some personality disorders, including psychopathy, narcissistic personality disorder, and schizoid personality disorder.

Psychopathy

Psychopaths can detect the emotions of others and mimic caring and friendship, possibly in an effort to exploit others, without empathizing or reciprocating these emotions. Some research indicates that components of neural circuits involved in empathy may be dysfunctional in psychopaths.

Narcissistic personality disorder

One diagnostic criterion of narcissistic personality disorder is a lack of empathy and an unwillingness to recognize or identify with the feelings and needs of others.

Schizoid personality disorder

Characteristics of schizoid personality disorder include emotional coldness, detachment, and impaired affect corresponding with an inability to be empathetic and sensitive towards others.

Conduct disorder

A study conducted by Jean Decety and colleagues at the University of Chicago demonstrated that subjects with aggressive conduct disorder elicit atypical empathic responses to viewing others in pain. Subjects with conduct disorder were at least as responsive as controls to the pain of others, but unlike controls, subjects with conduct disorder showed strong and specific activation of the amygdala and ventral striatum (areas that enable a general arousing effect of reward), yet impaired activation of the neural regions involved in self-regulation and metacognition (including moral reasoning), in addition to diminished processing between the amygdala and the prefrontal cortex.

Practical issues

Proper empathic engagement helps one to understand and anticipate the behavior of another. Apart from the automatic tendency to recognise the emotions of others, one may also deliberately engage in empathic reasoning. Two general methods have been identified here. A person may simulate 'pretend' versions of the beliefs, desires, character traits and context of the other and see what emotional feelings this leads to. Or, a person may simulate the emotional feeling and then look around for a suitable reason for this to fit.

Some research suggests that people are more able and willing to empathize with those most similar to themselves. In particular, empathy increases with similarities in culture and living conditions. Empathy is more likely to occur between individuals whose interaction is more frequent. (See Levenson and Reuf 1997 and Hoffman 2000: 62). A measure of how well a person can infer the specific content of another person's thoughts and feelings has been developed by William Ickes (1997, 2003). Ickes and his colleagues have developed a video-based method to measure empathic accuracy and have used this method to study the empathic inaccuracy of maritally aggressive and abusive spouses, among other topics.

There are concerns that the empathiser's own emotional background may affect or distort what emotions they perceive in others (e.g. Goleman 1996: p. 104). Empathy is not a process that is likely to deliver certain judgments about the emotional states of others. It is a skill that is gradually developed throughout life, and which improves the more contact we have with the person with whom one empathizes. Accordingly, any knowledge gained of the emotions of the other must be revisable in light of further information.

Ethical issues

The extent to which a person's emotions are publicly observable, or mutually recognized as such has significant social consequences. Empathic recognition may or may not be welcomed or socially desirable. This is particularly the case where we recognize the emotions that someone has towards us during real time interactions. Based on a metaphorical affinity with touch, philosopher Edith Wyschogrod claims that the proximity entailed by empathy increases the potential vulnerability of either party. The appropriate role of empathy in our dealings with others is highly dependent on the circumstances. For instance, Tania Singer claims that clinicians or caregivers must take care not to be too sensitive to the emotions of others, to over-invest their own emotions, at the risk of draining away their own resourcefulness. Furthermore an awareness of the limitations of empathic accuracy is prudent in a caregiving situation.

Disciplinary approaches

Psychotherapy

Heinz Kohut is the main introducer of the principle of empathy in psychoanalysis. His principle applies to the method of gathering unconscious material. The possibility of not applying the principle is granted in the cure, for instance when you must reckon with another principle, that of reality. Developing skills of empathy is often a central theme in the recovery process for drug addicts.

In evolutionary psychology, attempts at explaining pro-social behavior often mention the presence of empathy in the individual as a possible variable. Although exact motives behind complex social behaviors are difficult to distinguish, the "ability to put oneself in the shoes of another person and experience events and emotions the way that person experienced them" is the definitive factor for truly altruistic behavior according to Batson's empathy-altruism hypothesis. If empathy is not felt, social exchange (what's in it for me?) supersedes pure altruism, but if empathy is felt, an individual will help by actions or by word, regardless of whether it is in their self-interest to do so and even if the costs outweigh potential rewards.

Education

An important target of the method Learning by teaching (LbT) is to train systematically and, in each lesson, teach empathy. Students have to transmit new content to their classmates, so they have to reflect continuously on the mental processes of the other students in the classroom. This way it is possible to develop step-by-step the students' feeling for group reactions and networking.

Evolution of empathy

An increasing number of studies in animal behavior and neuroscience claim that empathy is not restricted to humans, and is in fact as old as the mammals, or perhaps older. Examples include dolphins saving humans from drowning or from shark attacks, and a multitude of behaviors observed in primates, both in captivity and in the wild, and in particular in bonobos, which are reported as the most empathetic of all the primates. A recent study has demonstrated prosocial behavior elicited by empathy in rodents.

Rodents have been shown to demonstrate empathy for cagemates (but not strangers) in pain. One of the most widely read studies on the evolution of empathy, which discusses a neural perception-action mechanism (PAM), is the one by Stephanie Preston and de Waal. This review postulates a bottom-up model of empathy that ties together all levels, from state matching to perspective-taking. For University of Chicago neurobiologist Jean Decety, [empathy] is not specific to humans. He argues that there is strong evidence that empathy has deep evolutionary, biochemical, and neurological underpinnings, and that even the most advanced forms of empathy in humans are built on more basic forms and remain connected to core mechanisms associated with affective communication, social attachment, and parental care. Core neural circuits that are involved in empathy and caring include the brainstem, the amygdala, hypothalamus, basal ganglia, insula and orbitofrontal cortex.

Fiction

Some philosophers (such as Martha Nussbaum) suggest that novel reading cultivates readers' empathy and leads them to exercise better world citizenship. For a critique of this application of the empathy-altruism hypothesis to experiences of narrative empathy, see Keen's *Empathy and the Novel* (Oxford, 2007). In some works of science fiction and fantasy, empathy is understood to be a paranormal or psychic ability to sense the emotions of others, as opposed to telepathy, which allows one to perceive thoughts as well. A person who has that ability is also called an "empath" or "telepath" in this context. Occasionally these empaths are also able to project their own emotions, or to affect the emotions of others.

History

Some postmodern historians such as Keith Jenkins in recent years have debated whether or not it is possible to empathise with people from the past. Jenkins argues that empathy only enjoys such a privileged position in the present because it corresponds harmoniously with the dominant Liberal discourse of modern society and can be connected to John Stuart Mill's concept of reciprocal freedom. Jenkins argues the past is a foreign country and as we do not have access to the epistemological conditions of by gone ages we are unable to empathise. It is impossible to forecast the effect of empathy on the future. A past subject may take part in the present by the so-called historic present. If we watch from a fictitious past, can tell the present with the future tense, as it happens with the trick of the false prophecy. There is no way of telling the present with the means of the past.

Gender differences

The issue of gender differences in empathy is quite controversial. It is often believed that females are more empathic than males. Evidence for gender differences in empathy are important for self-report questionnaires of empathy in which it is obvious what was being indexed (e.g., impact of social desirability and gender stereotypes) but are smaller or nonexistent for other types of indexes that are less self-evident with regard to their purpose. On average female subjects score higher than males on the Empathy Quotient (EQ), while males tend to score higher on the Systemizing Quotient (SQ).

Both males and females with Autistic Spectrum Disorders usually score higher on the SQ (Baron-Cohen, 2003). However, a series of recent studies, using a variety of neurophysiological measures, including MEG, spinal reflex excitability, and electroencephalography have documented the presence of a gender difference in the human mirror neuron system, with female participants exhibiting stronger motor resonance than male participants. In addition, these aforementioned studies found that female participants scored higher on empathy self-report dispositional measures and that these measures positively correlated with the physiological response. However, other studies show that women do not possess greater empathic abilities than men, and perceived gender differences are the result of motivational differences. Using fMRI, neuroscientist Tania Singer showed that empathy-related neural responses are significantly lower in males when observing an "unfair" person experiencing pain.

Moral development

Moral development focuses on the emergence, change, and understanding of morality from infancy through adulthood. In the field of moral development, morality is defined as principles for how individuals ought to treat one another, with respect to justice, others' welfare, and rights. In order to investigate how individuals understand morality, it is essential to measure their beliefs, emotions, attitudes, and behaviors that contribute to moral understanding. The field of moral development studies the role of peers and parents in facilitating moral development, the role of conscience and values, socialization and cultural influences, empathy and altruism, and positive development. The interest in morality spans many disciplines (e.g., philosophy, economics, biology, and political science) and specializations within psychology (e.g., social, cognitive, and cultural). Moral developmental psychology research focuses on questions of origins and change in morality across the lifespan.

Moral neuroscience

The advent and development of imaging technologies allows for an increasingly precise analysis of the neural correlates of moral judgment, emotion, and behavior, allowing for both a structural and functional view of the organ that organizes what we perceive in the world and directs how we respond to that world. Blair (2007) has documented cortical regions that are differentially active when considering emotional expressions (e.g., fear) in neurotypical controls compared to participants with antisocial personality disorder.Decety and Michalska (2009) have identified neural circuits underlying empathic and sympathetic reactions to others' pain. Varying the description of the trustworthiness of a partner in an economic decision game, Delgado, Frank, and Phelps (2005) were able to show that neural regions associated with reward processing were affected by the extent to which the participant thought she could trust the partner.

Morality and Society

The social domain theory had drawn the idea that there was a connection between the child's developing concepts of morality, and other domains of social knowledge, such as social convention. In a few tests Turiel had asked his test groups if they would hit their friend. They all said no because they would get in trouble. He then offered the idea that if they wouldn't get in trouble would they do it and most said no because they new the other person would get hurt and that would be wrong. This test showed that society creates standards for us and teaches us the right and wrong from interactions with other people and how they follow societal rules.

Morality Effect on Adaptability

The development and internalization of morals at an early age has been shown to be predictive of future adaptive skills and future socialization skills. A study that tested children at 25, 38, and 52 months on internalization of their mothers and fathers rules, and the children's perception of their morals found that the children were more competent and better socialized if they were highly developed in the two areas tested. The relation between the child's history of empathy toward the mother and future socialization was also significant. Children who are empathic at a young age also, will find it easier to maintain relationship, both romantically and with friends and co-workers. This skill is extremely important in communicating with people and being able to understand others perspective. Children who have high internalization of the mother and father's rules are also more likely to perceive themselves being more moral later in childhood.

Psychological resilience

Psychological resilience is an individual's tendency to cope with stress and adversity. This coping may result in the individual "bouncing back" to a previous state of normal functioning, or simply not showing negative effects. A third, more controversial form of resilience is sometimes referred to as 'posttraumatic growth' or 'steeling effects' where in the experience adversity leads to better functioning (much like an inoculation gives one the capacity to cope well with future exposure to disease). Resilience is most commonly understood as a process, and not a trait of an individual.

Recently there has also been evidence that resilience can indicate a capacity to resist a sharp decline in other harm even though a person temporarily appears to get worse. A child, for example, may do poorly during critical life transitions (like entering junior high) but experience problems that are less severe than would be expected given the many risks the child faces.

There is also controversy about the indicators of good psychological and social development when resilience is studied across different cultures and contexts. The American Psychological Association’s Task Force on Resilience and Strength in Black Children and Adolescents, for example, notes that there may be special skills that these young people and families have that help them cope, including the ability to resist racial prejudice. Researchers of indigenous health have shown the impact of culture, history, community values, and geographical settings on resilience in indigenous communities. People who cope may also show "hidden resilience" when they don’t conform with society’s expectations for how someone is supposed to behave (in some contexts, aggression may be required to cope, or less emotional engagement may be protective in situations of abuse).

In all these instances, resilience is best understood as a process. It is often mistakenly assumed to be a trait of the individual, an idea more typically referred to as "resiliency." Most research now shows that resilience is the result of individuals being able to interact with their environments and the processes that either promote well-being or protect them against the overwhelming influence of risk factors. These processes can be individual coping strategies, or may be helped along by good families, schools, communities, and social policies that make resilience more likely to occur. In this sense "resilience" occurs when there are cumulative "protective factors".

These factors are likely to play a more and more important role the greater the individual’s exposure to cumulative "risk factors". The phrase "risk and resilience"' in this area of study is quite common.

Commonly used terms, which are closely related within psychology, are "psychological resilience," "emotional resilience," "hardiness", "resourcefulness," and "mental toughness." The earlier focus on individual capacity which Anthony described as the "invulnerable child" has evolved into a more multilevel ecological perspective that builds on theory developed by Uri Bronfenbrenner (1979), and more recently discussed in the work of Michael Ungar (2004, 2008), Ann Masten (2001), and Michael Rutter (1987, 2008). The focus in research has shifted from "protective factors" toward protective "processes"; trying to understand how different factors are involved in both promoting well-being and protecting against risk.

Resilience science

Resilience is a dynamic process whereby individuals exhibit positive behavioral adaptation when they encounter significant adversity,trauma,tragedy, threats, or even significant sources of stress. It is different from strengths or developmental assets which are a characteristic of an entire population, regardless of the level of adversity they face. Under adversity, assets function differently (a good school, or parental monitoring, for example, have a great deal more influence in the life of a child from a poorly resourced background than one from a wealthy home with other options for support, recreation, and self-esteem).

Resilience is a two-dimensional construct concerning the exposure of adversity and the positive adjustment outcomes of that adversity. This two-dimensional construct implies two judgments: one about a "positive adaptation" and the other about the significance of risk (or adversity). One point of view about adversity could define it as any risks associated with negative life conditions that are statistically related to adjustment difficulties, such as poverty, children of mothers with schizophrenia, or experiences of disasters. Positive adaptation, on the other hand, is considered in a demonstration of manifested behaviour on social competence or success at meeting any particular tasks at a specific life stage, such as the absence of psychiatric distress after the September 11 terrorism attacks on the United States. Ungar argues that this standard definition of resilience could be problematic because it does not adequately account for cultural and contextual differences in how people in other systems express resilience. Through collaborative mixed methods research in eleven countries, Ungar and his colleagues at the Resilience Research Centre have shown that cultural and contextual factors exert a great deal of influence on the factors that affect resilience among a population of youth-at-risk.

Resilience has been shown to be more than just the capacity of individuals to cope well under adversity. Resilience is better understood as the opportunity and capacity of individuals to navigate their way to psychological, social, cultural, and physical resources that may sustain their well-being, and their opportunity and capacity individually and collectively to negotiate for these resources to be provided and experienced in culturally meaningful ways. Studies of demobilized child soldiers, high school drop-outs, urban poor, immigrant youth, and other populations at risk are showing these patterns. Among adults, these same themes emerge, as detailed in the work of Zautra, Hall and Murray (2010).

Expressions of resilience

Resilience can be described by viewing:

1. Good outcomes despite high-risk status,
2. Constant competence under stress,
3. Recovery from trauma, and
4. Using challenges for growth that makes future hardships more tolerable.

Resilience describes people who adapt successfully even though they experience risk factors that ‘stack the odds’ against them showing good developmental outcomes. Risk factors are related to poor or negative outcomes. For example, poverty, low socioeconomic status, and mothers with schizophrenia are correlated with lower academic achievement and more emotional or behavioral problems. Risk factors may be cumulative, carrying additive and exponential risks when they co-occur. Even when these risk factors occur in the lives of children, resilient individuals are those who show developmental competence nonetheless. They avoid the negative outcomes that are usually associated with those risk factors. These positive outcomes are attributed to some protective factors, such as good parenting or positive school experiences.

Resilience is usually thought of as the end product of an effective coping mechanism(s) when people are under stress, such as divorce. In this context, resilience describes sustained competence exhibited by individuals who experience challenging conditions. For example, most children who experience parental divorce (a risk factor) go on to show competent development in age-salient developmetnal tasks (e.g., good conduct, success at school, having friendships). Protective factors usually distinguish resilient children from non-resilient ones who experience the same adversity. Resilience, itself, is not a protective factor. Rather, protective factors suggest adaptive systems or processes in the person's life that allow them to show competence despite the threats of risk factors. Some protective factors for children in single-family, for example, are adults caring for children during or after major stressors (e.g., divorce), or self-efficacy for motivating endeavor at adaptation.

Finally, resilience can be viewed as the phenomenon of recovery from a prolonged or severe adversity, or from an immediate danger or stress. In this case, resilience is not related to vulnerability. People who experience acute trauma, for example, may show extreme anxiety, sleep problems, and intrusive thoughts. Over time, these symptoms decrease and recovery is likely. This realm of research shows that age and the supportive qualities of the family influence the condition of recovery. The Buffalo Creek dam disaster, for example, had longer effects on older children than on younger. Additionally, children with supportive families show fewer symptoms (e.g., dreams of personal death) than children from troubled families, as revealed by a study on victims of the 1976 Chowchilla, California bus kidnapping.

Factors related to resilience

Several factors are found to modify the negative effects of adverse life situations. Many studies show that the primary factor is to have relationships that provide care and support, create love and trust, and offer encouragement, both within and outside the family. Additional factors are also associated with resilience, like the capacity to make realistic plans, having self-confidence and a positive self image, developing communications skills, and the capacity to manage strong feelings and impulses.

Another protective factor is related to moderating the negative effects of environmental hazards or a stressful situation in order to direct vulnerable individuals to optimistic paths, such as external social support. More specifically, Werner (1995) distinguished three contexts for protective factors: (1) personal attributes, including outgoing, bright, and positive self-concepts; (2) the family, such as having close bonds with at least one family member or an emotionally stable parent; and (3) the community, like receiving support or counsel from peers.

Furthermore, a study of the elderly in Zurich, Switzerland, illuminated the role humor plays as a coping mechanism to maintain a state of happiness in the face of age-related adversity

Besides the above distinction on resilience, research has also been devoted to discovering the individual differences in resilience. Self-esteem, ego-control, and ego-resiliency are related to behavioral adaptation. For example, maltreated children who feel good about themselves may process risk situations differently by attributing different reasons to the environments they experience and, thereby, avoid producing negative internalizedself-perceptions. Ego-control is "the threshold or operating characteristics of an individual with regard to the expression or containment" (Block & Block, 1980, p. 43) of their impulses, feelings, and desires. Ego-resilience refers to "dynamic capacity, to modify his or her model level of ego-control, in either direction, as a function of the demand characteristics of the environmental context" (Block & Block, 1980, p. 48).

Maltreated children, who experienced some risk factors (e.g., single parenting, limited maternal education, or family unemployment), showed lower ego-resilience and intelligence than nonmaltreated children (Cicchetti et al., 1993). Furthermore, maltreated children are more likely than nonmaltreated children to demonstrate disruptive-aggressive, withdraw, and internalized behavior problems (Cicchetti et al., 1993). Finally, ego-resiliency, and positive self-esteem were predictors of competent adaptation in the maltreated children (Cicchetti et al., 1993).

Demographic information (e.g., gender) and resources (e.g., social support) are also used to predict resilience. Examining people's adaptation after the 9/11 attacks (Bonanno, GaleaBucciarelli, &Vlahov, 2007) showed women were associated with less likelihood of resilience than men. Also, individuals who were less involved in affinity groups and organisations showed less resilience. King, King, Fairbank, Keane, and Adams (1998) studied resilience in Vietnam War veterans and found social support to be a major factor contributing to resilience.

Schnurr, Lunney, and Sengupta (2004) found that several protective factors among those were the following factors protecting against the development of PTSD:

- Japanese-American ethnicity, high school degree or college education, older age at entry to war, higher socioeconomic status, and a more positive paternal relationship as premilitary factors

- Social support at homecoming and current social support as postmilitary factors and the following factors protecting among the maintenance of PTSD

- Native Hawaiian or Japanese-American ethnicity and college education as premilitary factors
- Current social support as postmilitary factor

A number of other factors that promote resilience have been identified:

- The ability to cope with stress effectively and in a healthy manner
- Having good problem-solving skills
- Seeking help
- Holding the belief that there is something one can do to manage your feelings and cope
- Having social support
- Being connected with others, such as family or friends
- Self-disclosure of the trauma to loved ones
- Spirituality
- Having an identity as a survivor as opposed to a victim
- Helping others
- Finding positive meaning in the trauma

Certain aspects of religions/spirituality may, hypothetically, promote or hinder certain psychological virtues that increase resiliance. Research has not established connection between spirituality and resilience. According to the 4th edition of Psychology of Religion by Hood, et al., the "study of positive psychology is a relatively new development...there has not yet been much direct empirical research looking specifically at the association of religion and ordinary strengths and virtues". In a review of the literature on the relationship between religiosity/spirituality and PTSD, amongst the significant findings, about half of the studies showed a positive relationship and half showed a negative relationship between measures of religiosity/spirituality and resilience. The United States Army has received criticism for promoting spirituality in its new [Comprehensive Soldier Fitness] program as a way to prevent PTSD, due to the lack of conclusive supporting data.

An emerging field in the study of resilience is the neurobiological basis of resilience to stress. For example, neuropeptide Y (NPY) and 5-Dehydroepiandrosterone (5-DHEA) are thought to limit the stress response by reducing sympathetic nervous system activation and protecting the brain from the potentially harmful effects of chronically elevated cortisol levels respectively. In addition, the relationship between social support and stress resilience is thought to be mediated by the oxytocin system's impact on the hypothalamic-pituitary-adrenal axis.

Resilience building

The American Psychological Association suggests "10 Ways to Build Resilience", which are: (1) maintaining good relationships with close family members, friends and others; (2) to avoid seeing crises or stressful events as unbearable problems; (3) to accept circumstances that cannot be changed; (4) to develop realistic goals and move towards them; (5) to take decisive actions in adverse situations; (6) to look for opportunities of self-discovery after a struggle with loss; (7) developing self-confidence; (8) to keep a long-term perspective and consider the stressful event in a broader context; (9) to maintain a hopeful outlook, expecting good things and visualizing what is wished; (10) to take care of one's mind and body, exercising regularly, paying attention to one's own needs and feelings.

A number of self-help approaches to resilience-building have been developed, drawing mainly on the theory and practice of cognitive-behavioural therapy.

Resilience and social programs

Head Start was shown to promote resilience.So was the Big Brothers Big Sisters Programme, the Abecedarian Early Intervention Project, and social programs for youth with emotional or behavioral difficulties

Tuesday's Children, a family service organization that made a long-term commitment to individuals that have lost loved ones to 9/11 and terrorism around the world, works to build psychological resilience through programs such as Mentoring and Project COMMON BOND, an 8-day peace-building and leadership initiative for teens, ages 15–20, from around the world who have been directly impacted by terrorism.

Children and resilience

Resilience in children refers to individuals who are doing better than expected, given a history that includes risk or adverse experience. Simply put, resilience requires two conditions to be met: (1) the child must have experienced some sort of risk or adversity that has been linked with poor outcomes, and (2) the child is generally doing okay despite being exposed to that risk or adversity; they are not showing that poor outcome.

The dominant view is that resilience is a description of a group of children. It is not a trait or something that some children 'just have.' There is no such thing as an 'invulnerable child' who can overcome any obstacle or adversity that she encounters in life. Resilience is not a rare and magical quality. In fact, it is quite common. Resilience is the product of a large number of developmental processes over time that has allowed children who experience some sort of risk to continue to develop competently (while other children have not). Research on 'protective factors' has helped developmental scientists to understand what matters most for resilient children. Protective factors are characteristics of children or situations that particularly help children in the context of risk. There are many different protective factors that are important for resilient children. Two that have emerged time and again in studies of resilient children are good cognitive functioning (like cognitive self-regulation and IQ) and positive relationships (especially with competent adults, like parents). Children who have protective factors in their lives tend to do better in some risky contexts when compared to children without protective factors in the same contexts. However, this is not a justification to expose any child to risk. Children do better when not exposed to high levels of risk or adversity.

A separate view is that certain children survive extremely high risk environments, such as a schizophrenic parent, through personal invulnerability—a stubborn resistance to being drawn into a maelstrom of mental illness due to a profound attachment to reality. Contemporary resilience researchers and thinkers appreciate this view as something in the history of thought on resilience in development, but recognize that it is oversimplified at best. The science of resilience in development has largely moved past the idea of 'invulnerable children.'

Building resilience in the classroom

Resilient children as described by Garmezy as working and playing well and holding high expectations, have often been characterized using constructs such as locus of control, self-esteem, self-efficacy, and autonomy. Benard concluded that resilient children have high expectations, a meaning for life, goals, personal agency, and inter-personal problem-solving skills. All of these things work together to prevent the debilitating behaviors that are associated with learned helplessness. Chess identified "adaptive distancing" as the psychological process whereby an individual can stand apart from distressed family members and friends in order to accomplish constructive goals and advance his or her psychological development. Moving away to college after high school is a way of practicing adaptive distancing. Classrooms in which students are given an opportunity to respond, an engaging cooperative learning environment, a participating role in setting goals, and a high expectation for student achievement. All of these characteristics help students develop a sense of belonging and involvement. These two characteristics help to reduce the feelings of alienation and disengagement. With that kind of connection in the school, students will have more of a protective shield against the adverse circumstances that life throws at them.

Role of the community

Communities play a huge role in fostering resilience. Benard identifies three characteristics of those types of communities: 1. Availability of social organizations that provide an array of resources to residents 2. Consistent expression of social norms so that community members understand what constitutes desirable behaviour 3. Opportunities for children and youth to participate in the life of the community as valued members. The clearest sign of a cohesive and supportive community is the presence of social organizations that provide healthy human development. Services are unlikely to be used unless there is good communication concerning them. Community-school relationships are very important to give extra resources to meet even basic psychological needs of students and families.

Role of the family

Fostering resilience in children requires family environments that are caring and structured, hold high expectations for children’s behavior, and encourage participation in the life of the family. Most resilient children have a strong relationship with at least one adult, not always a parent, and this relationship helps to diminish risk associated with family discord. Benard found that even though divorce produces stress, the availability of social support from family and community can reduce stress and yield positive outcomes. Any family that emphasizes the value of assigned chores, caring for brothers or sisters, and the contribution of part-time work in supporting the family helps to foster resilience.

Families in poverty

Numerous studies have shown that some practices that poor parents utilize help promote resilience within families. These include frequent displays of warmth, affection, emotional support; reasonable expectations for children combined with straightforward, not overly-harsh discipline; family routines and celebrations; and the maintenance of common values regarding money and leisure. According to sociologist Christopher B. Doob, "Poor children growing up in resilient families have received significant support for doing well as they enter the social world--starting in daycare programs and then in schooling."

Resilience and emotion

Some studies confirmed the association between resilience and positive emotion (e.g., Ong, Bergeman, Bisconti, & Wallace, 2006; Tugade et al., 2004).

Examining the role positive emotion plays in resilience, Ong et al. (2006) found that widows with high levels of resilience experience more positive (e.g., peaceful) and negative (e.g., anxious) emotions than those with low levels. The former group shows high emotional complexity which is the capacity to maintain the differentiation of positive and negative emotional states while underlying stress.

Ong et al. (2006) further suggest that the adaptive consequence of resilience is a function of an increase in emotional complexity while stress is present.

Moreover, high resilient widows showed the likelihood of controlling their positive emotional experiences to recover and bounce back from daily stress. Indeed, positive emotions were found to disrupt the experience of stress and help high resilient individuals to recover efficiently from daily stress (Fredrickson et al., 2003). In this case, some studies argue (e.g., Fredrickson et al., 2003; Tugade et al., 2004) that positive emotion helps resilient people to construct psychological resources that are necessary for coping successfully with significant catastrophe, such as the September 11th attacks. As a result, positive emotion experienced by resilient people functions as a protective factor to moderate the magnitude of adversity to individuals and assists them to cope well in the future (Tugade et al., 2004).

In addition to the above findings, a study (Fredrickson et al., 2003) further suggests that positive emotions are active elements within resilience.

By examining people’s emotional responses to the September 11th, Fredrickson et al. (2003) suggests that positive emotions are critical elements in resilience and as a mediator that buffer people from depression after the crises. Moreover, high resilient people were more likely to notice positive meanings within the problems they faced (e.g., felt grateful to be alive), endured fewer depressive symptoms, and experienced more positive emotions than low resilient people after terrorism attacks (Fredrickson et al., 2003). Similar results were obtained in another study regarding the effects of 911 attacks on resilient individuals' healthy adjustment (Bonanno et al., 2007).

People with high levels of resilience are likely to show low levels of depression, and less likely to smoke cigarettes or use marijuana (Bonanno et al., 2007). Moreover, low resilient people exhibit the difficulties of regulating negative emotions and demonstrate sensitive reaction to daily stressful life events (e.g., the loss of loved one) (Ong et al., 2006). They are likely to believe that there is no end for the unpleasant experience of daily stressors and may have higher levels of stress. In general, resilient people are believed to possess positive emotions, and such emotions in turn influence their responses to adversity.

Studies of resilience in specific populations

Psychological resilience has been studied in a number of groups.

Resilience in children at high risk for psychological disorder

A study conducted on children examined factors showing healthy adjustment after children experienced stresses and conditions known to carry a risks of unfavorable outcomes.

Factors that showed healthy adjustment were measured. First, the experimenters tested 109, 6 to 7 year old children with a multifactor screen that assessed psychological problems and stresses of family, motherly attitudes of herself and parenthood in general, and the mother's perception of the infants average mood. Also other variables such as stressful life events, social support available the mother and child, and the child's locus of control were measured.

Experimenters found that stresses related to birth or environmental stresses related to caregiving, place a child at greater risk for adjustment problems in later childhood. Also negative events throughout childhood also place a child at risk for adjustment problems. Stressful events magnify each other, while support of friends and family served as protective factors.

The authors claimed the results show that many children had self-righting tendencies and overcame forces that tried to steer them toward deviation. This means even though children had stressful events in their lives, they were able to continue on effectively. Also additional information was found that showed multiple risk factors all contribute to add to psychological disorders. Usually if problems are suffered, it is behavioural and even sometimes somatic.

Resilience among transgender youth

Transgender youth experience a wide-range of abuse and lack of understanding from the people in their environment and are better off with a high resilience to deal with their lives. A study was done looking at 55 transgender youths studying their sense of personal mastery, perceived social support, emotion-oriented coping and self-esteem. It was seen that around 50% of the variation in the resilience aspects accounted for the problematic issues of the teens. This means that transgender youths with lower resilience were more prone to mental health issues, including depression and trauma symptoms. Emotion-oriented coping was a strong aspect of resilience in determining how depressed the individuals were.

Children of poor Vietnamese parents in the U.S.A. and Germany

Nathan Caplan studied the children of poor Vietnamese parents in the US. Most of these parents were refugees. In many cases they did not own anything but the clothes they were wearing when they arrived. Most did not speak English. Half of the parents had less than five years of formal schooling. The refugees studied by Caplan lived in the worst neighborhoods of big cities. Yet their children turned out to be academically more successful than American middle class children.

Children of American farmers

Elder and Conger examined data from several Iowa counties to see how the farm crisis of the 1980s and 1990s affected children growing up in rural parts of the state. They found that a that a large number of those young people were on paths to successful development and life achievement. Most children of those children grew up to be academically successful and law-abiding.

Elder was able to identify five resource mechanisms:

1. Strong intergenerational bonds, joint activity between parents and children
2. Being socialized into productive roles in work and social leadership; stressing non-material goals
3. A network of positive engagement in church, school, and community life
4. Close ties with grandparents, support from grandparents
5. Strong family connections with the community

Children during the great depression

Elder studied the life of men who were children during the Great Depression of 1929-1939 and came to maturity at the outset of World War II. When these children came of age Elder found them to be healthy, law abiding, well adapted and bright. Yet such vast generalizations necessarily ignore the fact that many members of the same historical cohort exhibited none of those traits (laws were still broken), despite growing up in the same broadly adverse times.

One stunning finding was that poverty had slight positive effects on children from the middle classes. Once they reached adulthood those men earned a college degree as often as men from nondeprived middle-class homes. In later life they did a little better in terms of economic success than their nondeprived middle-class peers.

Men of working-class background did not do as well as men from middle-class homes. However, many of them were upwardly mobile and on most measures they did do just as well as men from never-deprived working-class backgrounds.

Depressive symptoms and resilience among pregnant adolescents

Pregnancies among adolescents are considered as a complication, as they favour education interruption, poor present and future health, higher rates of poverty, problems for present and future children, among other negative outcomes.

Spaniards in Germany

In the 1970s, Spain was a dictatorship under the rule of Francisco Franco. Many Spaniards fled to Germany in search of a better life. Most of those immigrants were poor and only few were able to speak proper German. Today their children do as well as German children when it comes to educational success and Spaniard adults do as well as German adults when it comes to occupational success.

Social emotional learning

Social emotional learning (**SEL**) is a process for learning life skills, including how to deal with oneself, others and relationships, and work in an effective manner. In dealing with oneself, SEL helps in recognizing our emotions and learning how to manage those feelings. In dealing with others, SEL helps with developing sympathy and empathy for others, and maintaining positive relationships. SEL also focuses on dealing with a variety of situations in a constructive and ethical manner.

Mental health in K-12 education

2003 research from CASEL found that 71% of students in 6th through 12th grade thought their school did not provide them with a caring, encouraging environment. Another statistic from the same study revealed that "at least 1 child in 10 suffers from a mental illness that severely disrupts daily functioning at home, in school, or in the community" and that 70-80% of struggling children don’t receive appropriate mental health services. Teaching social and emotional learning in schools aims to enhance children's understanding of themselves and those experiencing mental hardship and to encourage comfort in a school setting that values the development of knowledge, interpersonal skills and wellbeing in students.

Illinois Learning Standards

There are three goals for SEL in the Illinois Learning Standards:

1. "Develop self-awareness and self-management skills to achieve school and life success."
2. "Use social-awareness and interpersonal skills to establish and maintain positive relationships."
3. "Demonstrate decision-making skills and responsible behaviors in personal, school, and community contexts."

Benefits

The benefits of SEL can be found both in a school and home setting. For instance, SEL improves positive behaviors while reducing negative behaviors. Positive behaviours include improved social emotional skills, improved attitudes about self and others, and improved behaviour within the classroom. Negative behaviours that are reduced include conduct problems and emotional distress. Furthermore, SEL skills are maintained throughout life; even into adulthood, they can help to foster success.

Moreover, SEL can help to improve several skills including nonverbal communication skills, socially compentent behaviour, and social meaning and reasoning. Nonverbal communication is important because the majority of emotional meaning is conveyed without spoken words, and instead utilizes paralanguage, facial expressions, gestures and postures, interpersonal distance, and touch, rhythm and time. Social skills also play an important role in interpreting, encoding and reasoning social and emotional information that are associated with the social behaviour exhibited by the child. Finally, social meaning and reasoning are important in problem solving. Social meaning is the ability to interpret others' emotions and language, and to be able to respond appropriately, whereas social reasoning is that ability to identify a problem, set goals and evaluate the possible solutions available.

In education

Teachers, counselors and parents can play an important role in facilitating SEL. To begin, learning social and emotional skills is similar to learning other academic skills. Implementing a prevention program in schools can help to increase competence and learning in students which may be applied to more complex situations in the future. Teachers can accomplish this in the classroom through effective and direct classroom instructions, student engagement in positive activities, and involving parents, students and the community in planning, evaluating and implementing the program into the classroom. For instance, a program known as the *Strong Start: A Social and Emotional Learning Cirriculum*was evaluated in a classroom setting for children in second grade. The results of the study illustrated that the Strong Start curriculum program fostered tools important for social and emotional competence, which was evident through increased positive peer interactions and reduction in negative interal emotions. Also, a program known as Roots of Empathy was created by Mary Gordon in Toronto, Canada of 1996. The globalization of the evidence-based classroom program promotes increasing social and emotional competencies, and empathy in children.

Parents

It is important to also recognize that the facilitation can happen both at school and home. Acquiring nonverbal communication skills is important for developing SEL skills, since the majority of emotions are conveyed without words. Teachers and parents can improve nonverbal communication skills through the technique of *emotional coaching*. Emotional coaching is a technique developed by John Gottman and can provide guidance about emotions for children through a step process. Step 1: One needs to be aware of the learner's emotions, Step 2: Recognition of uncomfortable feelings can be a gateway for teaching and guidance opportunities, Step 3: Emotions exhibited need to be validated rather than evaluated, Step 4: Learners need help in labeling these emotions, Step 5: Finally, the problem that led to the emotions needs to be solved.

Furthermore, at home SEL can be fostered through the emphasis of sharing, listening, confidence, and tending to matters. A child's emotional and social development can grow by promoting and practicing these behaviours.

Learning disabilities

It is recognized that the majority of children with learning disabilities have difficulties with social relationships. More specifically, there are three SEL skill areas that can be addressed and improved for children with learning disabilities. Firstly, it is difficult for children with learning disabilities to recognize emotions of self and others. However, academic implications to improve the skill may involve reading or hearing a story and understanding the emotions of the characters and the plot. Secondly, it is difficult for children with learning disabilities to regulate and manage strong emotions, both positive and negative. Improving this skill may involve conversing with the teacher about these emotions and recording these emotions on a scaled thermometer. Lastly, it is often difficult for children with learning disabilities to recognize their strengths and areas of need too. *Until the Last Child* is a vehicle to promote positive connections between school contributions and recognizing strengths. Also, *Ability and Time of Ability* is a program used to help identify strengths of students and then have them work together at set times.

Social intelligence

Social intelligence describes the exclusively human capacity to effectively navigate and negotiate complex social relationships and environments. Psychologist and professor at the London School of Economics Nicholas Humphrey believes it is social intelligence or the richness of our qualitative life, rather than our quantitative intelligence, that truly makes humans what they are – for example what it's like to be a human being living at the centre of the conscious present, surrounded by smells and tastes and feels and the sense of being an extraordinary metaphysical entity with properties which hardly seem to belong to the physical world. Social scientist Ross Honeywill believes social intelligence is an aggregated measure of self and social awareness, evolved social beliefs and attitudes, and a capacity and appetite to manage complex social change. A person with a high social intelligence quotient (SQ) is no better or worse than someone with a low SQ, they just have different attitudes, hopes, interests and desires.

Social intelligence according to the original definition of Edward Thorndike, is "the ability to understand and manage men and women, boys and girls, to act wisely in human relations".[4] It is equivalent to interpersonal intelligence, one of the types of intelligences identified in Howard Gardner's Theory of multiple intelligences, and closely related to theory of mind. Some authors have restricted the definition to deal only with knowledge of social situations, perhaps more properly called social cognition or social marketing intelligence, as it pertains to trending socio-psychological advertising and marketing strategies and tactics. According to Sean Foleno, Social intelligence is a person's competence to comprehend his or her environment optimally and react appropriately for socially successful conduct.

Social intelligence quotient (SQ)

The social intelligence quotient or SQ is a statistical abstraction similar to the 'standard score' approach used in IQ tests with a mean of 100. Unlike the standard IQ test however it is not a fixed model.[3] It leans more to Piaget's theory that intelligence is not a fixed attribute but a complex hierarchy of information-processing skills underlying an adaptive equilibrium between the individual and the environment. An individual can therefore change their SQ by altering their attitudes and behaviour in response to their complex social environment.

Social intelligence hypothesis

The 'Social Intelligence Hypothesis' in science asserts that complex socialization – politics, romance, family relationships, quarrels, making-up, collaboration, reciprocity, altruism – in short, social intelligence (1) was the driving force in developing the size of human brains and (2) today provides our ability to use those large brains in complex social circumstances.

It was the demands of living together that drove our need for intelligence. This idea is called the 'Social Intelligence Hypothesis'.

Professor of early history at Reading University, Steve Mithen, believes there are two key periods of brain expansion that contextualize the social intelligence hypothesis. The first was around two million years ago when brains expanded by about 50%. So humans went from brain size of around 450cc to a brain size of around 1,000cc by 1.8 million years ago. Archaeologists noting this change in primates asked; why are brains getting larger and what is it providing? Brains wouldn't get larger just for any reasons because brain tissue is metabolically very expensive, so has to be serving an important purpose. Mithen believes the social intelligence hypothesis suggests the expansion of brain size around two million years ago was because people were living in larger groups, more complex groups, having to keep track of different people, a larger number of social relationships that required a larger brain to do so. Social intelligence therefore gives us the answer to that first expansion of brain size two million years ago.

Differences between intelligence and social intelligence

It's not enough just to be clever according to Professor Nicholas Humphrey. Autistic children, for example, are sometimes extremely clever. They're very good at making observations and remembering it all. However, it is argued they have low social intelligence. Chimpanzees are very clever at the level of being able to make observations and remember things. They can remember better than humans can, but they, again, are inept at handling interpersonal relationships. So something else is needed. What is needed is a theory of mind, a theory of how other people work from the inside. For a long time the field was dominated by behaviorism. Scientists believed that one could understand human beings, rats, or pigeons (for example) only by observing their behavior and finding correlations. More recent theories indicate that this is not true; one must consider the inner structure behaviour.

Both Nicholas Humphrey and Ross Honeywill believe it is social intelligence or the richness of our qualitative life rather than our quantitative intelligence that truly makes humans what they are – for example what it's like to be a human being living at the centre of the conscious present, surrounded by smells and tastes and feels and the sense of being an extraordinary metaphysical entity with properties which hardly seem to belong to the physical world. This is social intelligence.

Additional views

Social intelligence is closely related to cognition and emotional intelligence, and can also be seen as a first level in developing systems intelligence. Research psychologists studying social cognition and social neuroscience have discovered many principles which human social intelligence operates. In early work on this topic, psychologists Nancy Cantor and John Kihlstrom outlined the kinds of concepts people use to make sense of their social relations (e.g., "What situation am I in and what kind of person is this who is talking to me?"), and the rules they use to draw inferences ("What did he mean by that?") and plan actions ("What am I going to do about it?")

Soft skills

Soft skills is a sociological term relating to a person's "EQ" (Emotional Intelligence Quotient), the cluster of personality traits, social graces, communication, language, personal habits, friendliness, and optimism that characterize relationships with other people. Soft skills complement hard skills (part of a person's IQ), which are the occupational requirements of a job and many other activities.

Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects. Unlike hard skills, which are about a person's skill set and ability to perform a certain type of task or activity, soft skills relate to a person's ability to interact effectively with coworkers and customers and are broadly applicable both in and outside the workplace.

A person's soft skill EQ is an important part of their individual contribution to the success of an organization. Particularly those organizations dealing with customers face-to-face are generally more successful, if they train their staff to use these skills. Screening or training for personal habits or traits such as dependability and conscientiousness can yield significant return on investment for an organization. For this reason, soft skills are increasingly sought out by employers in addition to standard qualifications.

It has been suggested that in a number of professions soft skills may be more important over the long term than occupational skills. The legal profession is one example where the ability to deal with people effectively and politely, more than their mere occupational skills, can determine the professional success of a lawyer.

Soft Skills are *behavioral* competencies. Also known as *Interpersonal Skills,* or *people skills,* they include proficiencies such as communication skills, conflict resolution and negotiation, personal effectiveness, creative problem solving, strategic thinking, team building, influencing skills and selling skills, to name a few.

Study skills

Study skills or *study strategies* are approaches applied to learning. They are generally critical to success in school, considered essential for acquiring good grades, and useful for learning throughout one's life.

There are an array of study skills, which may tackle the process of organizing and taking in new information, retaining information, or dealing with assessments. They include mnemonics, which aid the retention of lists of information, effective reading and concentration techniques, as well as efficient notetaking.

While often left up to the student and their support network, study skills are increasingly taught in High School and at the University level. A number of books and websites are available, from works on specific techniques such as Tony Buzan's books on mind-mapping, to general guides to successful study such as those by Stella Cottrell.

More broadly, any skill which boosts a person's ability to study and pass exams can be termed a study skill, and this could include time management and motivational techniques.

Study Skills are discrete techniques that can be learned, usually in a short time, and applied to all or most fields of study. They must therefore be distinguished from strategies that are specific to a particular field of study e.g. music or technology, and from abilities inherent in the student, such as aspects of intelligence or learning styles.

Types

Methods based on memorization such as rehearsal and rote learning

One of the most basic approaches to learning any information is simply to repeat it by rote. Typically this will include reading over notes or a textbook, and re-writing notes.

Methods based on communication skills e.g. reading and listening

The weakness with rote learning is that it implies a passive reading or listening style. Educators such as John Dewey have argued that students need to learn critical thinking - questioning and weighing up evidence as they learn. This can be done during lectures or when reading books.

One method used to focus on key information when studying from books is the **PQRST method**. This method prioritizes the information in a way that relates directly to how they will be asked to use that information in an exam. PQRST is an acronym for **P**review, **Q**uestion, **R**ead, **S**ummary, **T**est.

1. **Preview:** The student looks at the topic to be learned by glancing over the major headings or the points in the syllabus.
2. **Question:** The student formulates questions to be answered following a thorough examination of the topic(s).
3. **Read:** The student reads through the related material, focusing on the information that best relates to the questions formulated earlier.
4. **Summary:** The student summarizes the topic, bringing his or her own understanding into the process. This may include written notes, spider diagrams, flow diagrams, labeled diagrams, mnemonics, or even voice recordings.
5. **Test:** The student answers the questions drafted earlier, avoiding adding any questions that might distract or change the subject.

There are a variety of studies from different colleges nation-wide that show peer-communication can help increase better study habits tremendously. One study shows that an average of 73% score increase was recorded by those who were enrolled in the classes surveyed.

Methods based on cues e.g. flashcard training

Flash Cards are visual cues on cards. These have numerous uses in teaching and learning, but can be used for revision. Students often make their own flash cards, or more detailed **index cards** - cards designed for filing, often A5 size, on which short summaries are written. Being discrete and separate, they have the advantage of allowing students to re-order them, pick a selection to read over, or choose randomly to for self-testing.

Methods based on condensing information, summarizing and the use of keywords

Summary methods vary depending on the topic, but most involve condensing the large amount of information from a course or book into shorter notes. Often these notes are then condensed further into key facts.

Organized summaries: Such as outlines showing keywords and definitions and relations, usually in a tree structure.

Spider diagrams: Using spider diagrams or mind maps can be an effective way of linking concepts together. They can be useful for planning essays and essay responses in exams. These tools can give a visual summary of a topic that preserves its logical structure, with lines used to show how different parts link together.

Methods based on visual imagery

Some learners are thought to have a visual learning style, and will benefit greatly from taking information from their studies which is often heavily verbal, and using visual techniques to help encode and retain it in memory.

Some memory techniques make use of visual memory, for example the method of loci, a system of visualising key information in real physical locations e.g. around a room.

Diagrams are often underrated tools. They can be used to bring all the information together and provide practice reorganizing what has been learned in order to produce something practical and useful. They can also aid the recall of information learned very quickly, particularly if the student made the diagram while studying the information. Pictures can then be transferred to flash cards that are very effective last minute revision tools rather than rereading any written material.

Theory of multiple intelligences

This article is about Howard Gardner's theory of multiple intelligences. For other uses, see Intelligence.

The **theory of multiple intelligences** was proposed by Howard Gardner in his 1983 book *Frames of Mind: The Theory of Multiple Intelligences* as a model of intelligence that differentiates intelligence into specific (primarily sensory) "modalities", rather than seeing it as dominated by a single general ability.

Gardner argues that there is a wide range of cognitive abilities, and that there are only very weak correlations among them. For example, the theory postulates that a child who learns to multiply easily is not necessarily more intelligent than a child who has more difficulty on this task. The child who takes more time to master multiplication may best learn to multiply through a different approach, may excel in a field outside mathematics, or may be looking at and understanding the multiplication process at a fundamentally deeper level. Such a fundamental understanding can result in slowness and can hide a mathematical intelligence potentially higher than that of a child who quickly memorizes the multiplication table despite possessing a less deep understanding of the process of multiplication.

Intelligence tests and psychometrics have generally found high correlations between different aspects of intelligence, rather than the low correlations which Gardner's theory predicts, supporting the prevailing theory of general intelligence rather than multiple intelligences (MI). The theory has been widely criticized by mainstream psychology for its lack of empirical evidence, and its dependence on subjective judgement. Certain models of alternative education employ the approaches suggested by the theory.

The multiple intelligences

Gardner articulated seven criteria for a behavior to be considered an intelligence.[1] These were that the intelligences showed:

1. Potential for brain isolation by brain damage,
2. Place in evolutionary history,
3. Presence of core operations,
4. Susceptibility to encoding (symbolic expression),
5. A distinct developmental progression,
6. The existence of savants, prodigies and other exceptional people,
7. Support from experimental psychology and psychometric findings.

Gardner chose eight abilities that he held to meet these criteria: spatial, linguistic, logical-mathematical, bodily-kinesthetic, musical, interpersonal, intrapersonal, and naturalistic. He later suggested that existential and moral intelligence may also be worthy of inclusion.

Logical-mathematical

This area has to do with logic, abstractions, reasoning and numbers and critical thinking. This also has to do with having the capacity to understand the underlying principles of some kind of causal system.[4] Logical reasoning is closely linked to fluid intelligence and to general intelligence (*g* factor).[5]

Spatial

This area deals with spatial judgment and the ability to visualize with the mind's eye. Spatial ability is one of the three factors beneath *g* in the hierarchical model of intelligence.

Linguistic

People with high verbal-linguistic intelligence display a facility with words and languages. They are typically good at reading, writing, telling stories and memorizing words along with dates. Verbal ability is one of the most *g*-loaded abilities. This type of intelligence is associated with the Verbal IQ in WAIS-III.

Bodily-kinesthetic

The core elements of the bodily-kinesthetic intelligence are control of one's bodily motions and the capacity to handle objects skillfully. Gardner elaborates to say that this also includes a sense of timing, a clear sense of the goal of a physical action, along with the ability to train responses.

People who have bodily-kinesthetic intelligence should learn better by involving muscular movement (e.g. getting up and moving around into the learning experience), and be generally good at physical activities such as sports, dance, acting, and making things.

Gardner believes that careers that suit those with this intelligence include: athletes, pilots, dancers, musicians, actors, surgeons, builders, police officers, and soldiers. Although these careers can be duplicated through virtual simulation, they will not produce the actual physical learning that is needed in this intelligence.

Musical

This area has to do with sensitivity to sounds, rhythms, tones, and music. People with a high musical intelligence normally have good pitch and may even have absolute pitch, and are able to sing, play musical instruments, and compose music. Since there is a strong auditory component to this intelligence, those who are strongest in it may learn best via lecture. They will sometimes use songs or rhythms to learn. They have sensitivity to rhythm, pitch, meter, tone, melody or timbre.

Interpersonal

This area has to do with interaction with others. In theory, individuals who have high interpersonal intelligence are characterized by their sensitivity to others' moods, feelings, temperaments and motivations, and their ability to cooperate in order to work as part of a group. According to Gardner in *How Are Kids Smart: Multiple Intelligences in the Classroom*, "Inter- and Intra- personal intelligence is often misunderstood with being extroverted or liking other people..." Those with this intelligence communicate effectively and empathize easily with others, and may be either leaders or followers. They typically learn best by working with others and often enjoy discussion and debate.

Gardner believes that careers that suit those with this intelligence include sales, politicians, managers, teachers, counselors and social workers.

Intrapersonal

This area has to do with introspective and self-reflective capacities. This refers to having a deep understanding of the self; what your strengths/ weaknesses are, what makes you unique, being able to predict your own reactions/emotions.

Naturalistic

This area has to do with nurturing and relating information to one's natural surroundings. Examples include classifying natural forms such as animal and plant species and rocks and mountain types. This ability was clearly of value in our evolutionary past as hunters, gatherers, and farmers; it continues to be central in such roles as botanist or chef.

Existential

Some proponents of multiple intelligence theory proposed spiritual or religious intelligence as a possible additional type. Gardner did not want to commit to a spiritual intelligence, but suggested that an "existential" intelligence may be a useful construct. The hypothesis of an existential intelligence has been further explored by educational researchers.

Critical reception

Definition of intelligence

One major criticism of the theory is that it is *ad hoc*: that Gardner is not expanding the definition of the word "intelligence"; rather, he denies the existence of intelligence as traditionally understood and instead uses the word "intelligence" where other people have traditionally used words like "ability" and "aptitude". This practice has been criticized by Robert J. Sternberg, Eysenck, and Scarr, White (2006) points out that Gardner's selection and application of criteria for his "intelligences" is subjective and arbitrary, and that a different researcher would likely have come up with different criteria.

Defenders of MI theory argue that the traditional definition of intelligence is too narrow, and thus a broader definition more accurately reflects the differing ways in which humans think and learn. They would state that the traditional interpretation of intelligence collapses under the weight of its own logic and definition, noting that intelligence is usually defined as the cognitive or mental capacity of an individual, which by logical necessity would include all forms of mental qualities, not just the ones most transparent to I.Q. tests.

Some criticisms arise from the fact that Gardner has not provided a test of his multiple intelligences. He originally defined it as the ability to solve problems that have value in at least one culture, or as something that a student is interested in. He then added a disclaimer that he has no fixed definition, and his classification is more of an artistic judgment than fact:

Ultimately, it would certainly be desirable to have an algorithm for the selection of an intelligence, such that any trained researcher could determine whether a candidate's intelligence met the appropriate criteria. At present, however, it must be admitted that the selection (or rejection) of a candidate's intelligence is reminiscent more of an artistic judgment than of a scientific assessment.

Gardner argues that by calling linguistic and logical-mathematical abilities intelligences, but not artistic, musical, athletic, etc. abilities, the former are needlessly aggrandized. Certain critics balk at this widening of the definition, saying that it ignores "the connotation of intelligence ... [which] has always connoted the kind of thinking skills that makes one successful in school."

Gardner writes "I balk at the unwarranted assumption that certain human abilities can be arbitrarily singled out as intelligence while others cannot." Critics hold that given this statement, any interest or ability can be redefined as "intelligence". Thus, studying intelligence becomes difficult, because it diffuses into the broader concept of ability or talent. Gardner's addition of the naturalistic intelligence and conceptions of the existential and moral intelligences are seen as fruits of this diffusion. Defenders of the MI theory would argue that this is simply a recognition of the broad scope of inherent mental abilities, and that such an exhaustive scope by nature defies a one-dimensional classification such as an IQ value.

The theory and definitions have been critiqued by Perry D. Klein as being so unclear as to be tautologous and thus unfalsifiable. Having a high musical ability means being good at music while at the same time being good at music is explained by having a high musical ability.

IQ tests

Gardner argues that IQ tests only measures linguistic and logical-mathematical abilities. Psychologist Alan S. Kaufman points out that IQ tests have measured spatial abilities for 70 years. Modern IQ tests are greatly influenced by the Cattell-Horn-Carroll theory which incorporates a general intelligence but also many more narrow abilities. While IQ tests do give an overall IQ score, they now also give scores for many more narrow abilities.

Lack of empirical evidence

According to a 2006 study many of Gardner's "intelligences" correlate with the *g* factor, supporting the idea of a single dominant type of intelligence. According to the study, each of the domains proposed by Gardner involved a blend of *g*, of cognitive abilities other than *g*, and, in some cases, of non-cognitive abilities or of personality characteristics.

Linda Gottfredson (2006) has argued that thousands of studies support the importance of intelligence quotient (IQ) in predicting school and job performance, and numerous other life outcomes. In contrast, empirical support for non-*g* intelligences is lacking or very poor. She argued that despite this the ideas of multiple non-*g* intelligences are very attractive to many due to the suggestion that everyone can be smart in some way.

Use in education

Gardner defines an intelligence as "biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture." According to Gardner, there are more ways to do this than just through logical and linguistic intelligence. Gardner believes that the purpose of schooling "should be to develop intelligences and to help people reach vocational and avocational goals that are appropriate to their particular spectrum of intelligences. People who are helped to do so, believes, feel more engaged and competent and therefore more inclined to serve society in a constructive way."

Gardner contends that IQ tests focus mostly on logical and linguistic intelligence. Upon doing well on these tests, the chances of attending a prestigious college or university increase, which in turn creates contributing members of society. While many students function well in this environment, there are those who do not. According to Helding (2009), "Standard IQ tests measure knowledge gained at a particular moment in time, they can only provide a freeze-frame view of crystallized knowledge. They cannot assess or predict a person’s ability to learn, to assimilate new information, or to solve new problems." Gardner's theory argues that students will be better served by a broader vision of education, wherein teachers use different methodologies, exercises and activities to reach all students, not just those who excel at linguistic and logical intelligence. It challenges educators to find "ways that will work for this student learning this topic".

Vocational education

Vocational education (education based on occupation or employment) (also known as **vocational education and training** or **VET**) is education that prepares people for specific trades, crafts and careers at various levels from a trade, a craft, technician, or a professional position in engineering, accountancy, nursing, medicine, architecture, pharmacy, law etc. Craft vocations are usually based on manual or practical activities, traditionally non-academic, related to a specific trade, occupation, or *vocation*. It is sometimes referred to as *technical education* as the trainee directly develops expertise in a particular group of techniques. In the UK some higher technician engineering positions that require 4-5 year apprenticeship require academic study to HNC / HND or higher City and Guilds level.

Vocational education has diversified over the 20th century and now exists in industries such as retail, tourism, information technology, funeral services and cosmetics, as well as in the traditional crafts and cottage industries.

VET internationally

Australia

In Australia vocational education and training is mostly post-secondary and provided through the vocational education and training (VET) system by registered training organisations. This system encompasses both public, TAFE, and private providers in a national training framework consisting of the Australian Quality Training Framework, Australian Qualifications Framework and Industry Training Packages which define the assessment standards for the different vocational qualifications.

Since the states and territories are responsible for most public delivery and all regulation of providers, a central concept of the system is "national recognition" whereby the assessments and awards of any one registered training organisation must be recognised by all others and the decisions of any state or territory training authority must be recognised by the other states and territories. This allows national portability of qualifications and units of competency.

CPH 103: Computer Applications

Course Name	: Computer Theory

Course Description

The Course deals with the introduction, background and significance of computers, computer hardware and software, networking and the internet, the various computer devices and their applications such as operating systems, input/output devices etc, to students. The Course explains some practical applications such as Ms Word, Ms excel, Power point and their presentation and browsing the internet. It provides prior knowledge to computer language program which can be helpful at further stages of Computer studies.

Course objectives

- To help students attain basic knowledge of the computer
- To help students to become familiar with the use of internet and browse the World Wide Web through routine practice.
- To enable students develop foundational skills for information technology.

Course content

Introduction to computers

- Information management

- Why were office systems less beneficial than computerized systems
- Why computers are better than people
- Limitations of computers
- Effects of office automation on business
- Definition of computers
- Characteristics of computers
- Types of computers

Hard ware concepts

- The processor and its elements
- Manual input devices that include keyboard, web camera, the monitor, mouse
- Automatic input devices that include modems, magnetic ink character recognition, optical mark reading, magnetic stripe cards
- Output devices that include VDU, speakers, printers,
- Storage devices that include; hard disks, floppy disks, Flash disks, tape storage

Networks and data communications

- Configurations that include; centralized, decentralized and distributed processing as well as key features of distributed processing
- Networks that include: Local Area Network(LANs), Wide Area Networks(WANs),Metropolitan Area Network(MAN), storage Area Networks
- Client-server computing
- Data communication that include; oral, paper and electronic data communication
- Data transmission equipment that include; coaxial cables, modems, multiplexers

Software Concepts

- Definition of software
- Operating system
- Functions of an operating system
- Windows, MS-DOS, features of windows 95, features of windows 98
- Application software and packages
- Examples of word processing programs
- Spread sheets
- Examples of spread sheets

Personal Information Managers (PIM)

- Importance of PIM
- Examples of PIMs
- Integrated packages
- Utility programs
- Viruses
- Types of viruses and how they are transmitted

Programming Languages

- Low level language i.e Machine code, assembly
- High level language
- Advantages of high-level languages over low-level language

Assessment
Course work 40%
Exams 60%
Total Mark 100%

CHAPTER ONE

1:0 ATTRIBUTES TO INFORMATION

Everything that we do, either in our personal life or as part of the activities of work depends on information. Therefore, information is a key resource for success of most of the companies and organisations.
Information refers to facts or knowledge about something, which could be important for decision-making.

1:1 INFORMATION MANAGEMENT

Like any other resource, i.e. machines, money, etc. Information must be controlled and organised. It should be managed (collected, organised and controlled). Information management is accomplished by the factors considered below:

i) Identifying current and future information needs
Information is always needed for current decisions e.g. current sales performance, and any likely future changes e.g. need for future expansion.

ii) Identifying Information Sources
In order to make good decisions, the information used must be collected from proper sources e.g. if the company sales are affected by weather, then reliable information about weather should be collected from Meteorological Department.

iii) Collecting the Information
Some information may easily be collected using any simple means, but other information may only be got after using wise tactics or a series of procedures e.g. a profit for the month, or year.

iv) Storing the Information
Information collected should always be stored securely and accessibly to enable future use and reference.

v) Ensuring that information is communicated to the right person who needs it
Always information should only be communicated to people who need it and kept away from those who don't deserve it.

1:2 DEFINITIONS

Data

These are the raw materials for information. Any thing that the computer can work with, either numbers of any kind, texts, facts, etc.

Information

This refers to processed data. Items that have been re-arranged so as to give the user a meaning, which could be vital for decision-making.

Qualities of good information

Good information has a number of specific qualities for which accurate is a useful mnemonic (symbol).

Accurate

Information should obviously be accurate because using incorrect information could have serious and damaging consequences.

Consistency

Especially in accountancy, information should always be consistent e.g. if the March report of slow paying students is prepared on the basis that slow paying students are those who have not paid within 60 days, but the August report considers students who have not paid within 30 days, then is not valid to compare the two reports.

Clarity

The information should always be clear to the user. If the user can't understand the information, then he certainly can't use it properly.

Reliability

Information must be trusted by the managers who are expected to use it. An information source may therefore play a great role here.

Communication

Information should always be communicated to the right person.

Channel of communication

Depending on the type of information being communicated and to person(s) for whom it is intended, a proper channel should always be used.

Volume and brevity

Information should be brief, so long as this does not mean that it is incomplete or inaccurate. Huge volumes of information may be hard to absorb even if all of it is relevant.

Timing

Information should always be delivered in time, as information delivered shortly after a decision is already taken is always useless however relevant and accurate it is.

Cost

The benefits to be achieved from the information should out way the costs involved in obtaining and communicating it to the people concerned. This may either be in the short or long run.

Question:

What is information? What are the main qualities of good information?

1:3 TECHNOLOGY FOR INFORMATION

Information handling and processing in offices has been made easy due to enormous development in office machines and computers.
However on the other hand the manual systems exist along side computerised systems.

Why manual office systems are less beneficial than computerised systems.

- Labour productivity is usually lower, particularly in routine and operational applications.
- Processing is slower where large volumes of data need to be dealt with.
- Risks of errors are greater, especially in repetitive work like payroll calculations.
- Information is generally less accessible.
- It is difficult to make corrections or alterations.
- Quality of output is less consistent and not as high as well-designed computer output.

Why computers are better than people

- For storing information
- It's more accurate than humans
- It works faster than humans
- Its automatic i.e. carries out many operations without human input
- It is diligent i.e. works for long hours without getting tired
- It's used for entertainment
- It's used for communication e.g. email, Internet
- It's used for data base management i.e handling large volumes of information (data)
- It's used for computations

LIMITATIONS OF COMPUTERS

- Less flexible than humans
- Have to be explicitly "told" what to do
- If an unanticipated situation arises, PCs can produce erroneous results
- Have no potential to work out a solution

1:4 OFFICE AUTOMATION

This is majorly composed of word processing, spreadsheets, databases, telephone and fax (facsimile) and networks.

Effects of office automation on businesses

Office automation has an enormous effect on business in a variety of ways:

- **Routine processing**

The processing of routine data can be done in bigger volumes, at greater speed and with greater accuracy than with non-automated - manual system.

- **The paperless office**

There might be less paper in the office (but not necessarily so) with more data processing done by keyboard. Data storage done electronically other than using papers.

- **Management information**

This is likely to change both in nature and quality, as more information will easily be available and accessible, through information analysis done easily and so on.

♦ **Organisation structure**
This may change, as the PCs are likely to be locally controlled in an office or branch, creating a shift to decentralisation.

♦ **Customer Service**
This can improve especially if the customers can call an organisation and the feedback the staff give to callers is from the organisation's on-line data base.

1:5 HOME WORKING
Advances in communication technology have, for some tasks, reduced the need for the actual presence of an individual in the office. This is particularly time for tasks involving computers.

The advantages of home working for an organisation involve the following:

a) Cost saving on space
Rental changes are a little high and if some employees can do their work from home, then this will reduce on the space occupied and thus the rental fees.

b) A larger pool of labour
More applicants are expected especially for clerical positions, especially from people who are committed else where and office time tables may collide.

c) Freelance employees
This category of employees will be good for the organisation as there will be no sick pay, holiday pays and salaries especially when there is no sufficient work.

The advantages to the individual
♦ No time wasted commuting to the office.
♦ The work can be organised flexibly around the individual's domestic commitments.
♦ Jobs that require concentration may sometimes be done better at home without the office disruptions.

Disadvantages
To the Organisation
The major disadvantages to the organisation are normally lack of control as managers will have no close supervision of the workers.

To the Individual
♦ **Isolation**
If just forced to work from home, this may cause barriers to social life experienced in offices.

♦ **Intrusions**
A home worker is vulnerable to home interruptions e.g. a kid or members of the family who may forget that the individual is home working.

♦ **Adequate Space**
It may not be always possible to obtain a quiet space at home in which to work.

♦Freelance home workers normally have fewer rights compared to office stationed workers.

Question:
Today home working is booming in employment sector, what do you think has led to this and what advantages does the organisation get from this kind of trend?

1:6 IT AND ACCOUNTING (ACCOUNTING PACKAGES)

Years back, accounting records were only prepared manually, developments in information recording technology has however advanced and now the same accounting records can be made using computers e.g. ledgers, trial balances,

profit and loss accounts, balance sheets, etc. The only difference is that these various books of accounts have TO be count invisible and can only be called out.

The advantages of accounting packages compared with a manual system are as follows:
♦Non-specialists can use the packages.
♦A large amount of data can be processed very quickly.
♦Computerised systems are more accurate than manual.
♦Double entry is automatic

If you enter the details of an invoice the system automatically updates the sales account, the VAT account, the debtor's ledger control account and the memorandum of sales ledger account. There is no need to enter the information four times.

♦Integration; all ledgers and records can be linked up.
♦Easy information analysis in terms of trial balance or a debtors' schedule.

Disadvantages
The advantages of computerised accounting systems far out weight the disadvantages, particularly for large businesses. However, the following may be identified as possible disadvantages.

♦The initial time and costs the system, training personnel and so on.
♦The need for security checks to make sure that unauthorised personnel do not gain access to data files.
♦The necessity to develop a system of coding and checking.

♦Lack of audit trail. It is not always easy to see where a mistake has been made.
♦Possible resistance on the part of staff to the introduction of the system.

Types of accounting packages

The most widely used packages are as follows:
Small business (1-10 people)
♦Sage Line 100 or Line 50
♦Quick books
♦Tas books

Small to medium (10-30 people)

- Sage Sovereign
- Pegasus opera
- Exact
- Multisoft prestige

Medium - sized businesses (30-200 people)
- Sun-accounts
- Tetra chameleon
- Scala
- Dynamics

Large business (200 - 2000 people)
- Coda
- JBA

Very large businesses
- SAP
- Oracle
- Dun & Brad Street

CHAPTER TWO

HARD WARE CONCEPTS

2:0 INTRODUCTION
Under this chapter, we shall look at the following:

- Computer components
- Characteristics of a computer
- The Processor
- Other peripherals
- Manual input devices
- Automatic input devices
- Output devices
- Storage devices

2:1 COMPUTER COMPONENTS
Hardware – these are the physical parts of the computer e.g the mouse, monitor, and keyboard
Software – these are the invisible components of the computer. They are the programs and instructions, which run the computer
User- should be trained personnel

2:2 COMPUTERS

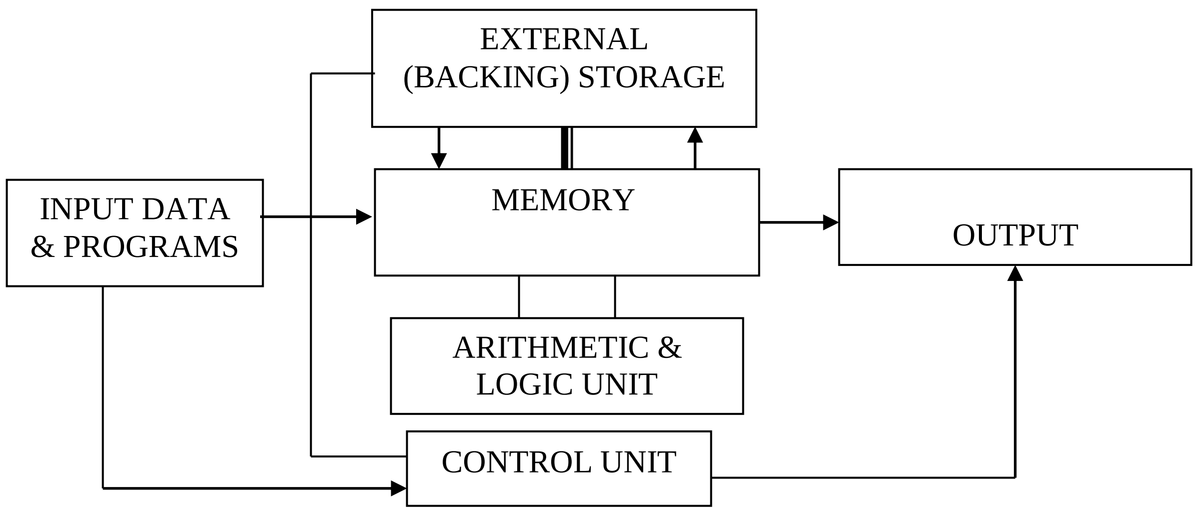
Definition:
A computer is a device, which will accept input data, process it according to programmed logical and arithmetic rules, store and out put the results.

A computer is therefore a mixture of physical things like keyboards, mice, screens, circuits and cables (hard ware) and intangible arithmetic and logic (software).

Hardware means, the various physical components (tangible) as opposed to the non-tangible software elements.

CHARACTERISTICS OF COMPUTERS (Assignment)

- Machine
- Processing
- Versatile- performs multiple functions easily
- Electronic
- Automation
- Storage- stores a lot of information in a very small space
- Accuracy
- Compatibility
- Consistency



Types of Computers

These are categorised by size and output

By Output

i) Digital

ii) Analogue

By Size

i) Super computers

ii) Main frame computers (at times called enterprise servers)

iii) Mini computers, now often called mid-range computers

iv) Micro-computers, now commonly called PCs.

We shall group (iii) and (iv) as 'Small business computers'.

Super Computers

A super computer is used to process very large amounts of data very quickly. They are particularly useful for occasions where high volumes of calculations need to be performed, for example in meteorological or astronomical applications.

Main frames

A main frame computer system is one that has at its heart a very powerful central computer, linked by cable or telecommunications to hundreds or thousands of terminals, and capable of accepting simultaneous input from all of them.

- Other characteristics include:
- Has centralised service departments
- Handles multi-level output
- Very high processing speed
- Have disk drives like magnetic tapes
- Very large size therefore handles big tasks and can support many users
- Stores vast amount of data
- Industrial use
- Expensive but slightly smaller than super computers
- Support services for data preparation, control and programming

Medium and small business computers

Mini computers

A mini computer is a computer whose size, speed and capabilities lie some where between those of a main frame and a PC.

Characteristics

- Smaller than mainframe computers
- Have smaller storage capacity and are slower
- Linked to other computer workstations
- Handles multi-level output
- Are large in size
- Disk drives include tape drives

♦Environmental control is not necessary
♦Limited output and input peripherals

Personal Computers
The ‘personal computers’ (or ‘micro computers’) are the most common computers available in most of the businesses and even in homes.

Characteristics

♦Small for personal use.
♦Low output
♦Operated in desks
♦Most common computers in business
♦Handles relatively big tasks
♦Have fairly good processing speed
♦Have limited input and output devices
♦Compilers and interpreters are permanently stored in hardware as ROM
♦They are often linked together in a network to enable sharing of information between users.

File servers
A file server is more powerful than the average desktop PC and it is dedicated to providing additional services for users of networked PCs.

A very big net work may use a ‘main frame’ as its server, and indeed main frames are beginning to be refereed to as ‘enterprise servers’.

Portables
The original portable computers were heavy, weighing around five kilograms, and could only run from the mains electricity supply. Subsequent developments allow true portability.

i)The Laptop. Powered either from the electricity supply or using a rechargeable battery. It uses 3½” disks, CD - ROMS, liquid crystal or gas plasma screen and is fully compatible with desktop PCs.

ii) The notebook is about the size of an A4 pad of paper. Some portables are now marketed as ‘sub-note books’.
iii)The pocket computer or hand held, may or may not be compatible with a true PC.

Much as PCs (portables) may be very popular because of their easy way of transportation and occupation of smaller space in offices, they have some draw backs;

i) Key board ergonomics
The keys are too small, or too close together for easy, quick typing.
ii) Battery power
They normally don’t last for long periods.

A typical PC specification may involve the following:

♦Intel 233 mttz pentium 11 processor 33. 6 kpbs internal fax modem.
♦64 MB FAST EDO RAM (expandable to 512 MB)
♦6.4GB hard disk drive, 15” SVGA colour monitor LR, NI up to 1024 x 768 energy star compliant.

Advantages

- ♦Easy to transport
- ♦Occupy small spaces in offices

2:3 THE PROCESSOR

The processor is the ‘brain’ of the computer.

Definition

A processor is the collection of circuitry and registers that performs the processing in a particular computer and provides that computer with its specific characteristics.

The processor (sometimes referred to as central processing unit (or CPU) is divided into three areas.

- ♦The Arithmetic and Logic Unit, (ALU)
- ♦The Control Unit,
- ♦The Main Store or Memory (RAM & ROM)

In modern computer systems the processing unit may have all its elements - arithmetic and logic unit, control unit and the input/output interfall on a single ‘chip’.

Definition

A chip is a small piece of silicon upon which is etched an integrated circuit, which consists of transistors and their interconnecting patterns on an extremely small scale.

The chip is mounted on a carrier unit which is ‘plugged’ on to a circuit board called the mother board with other chips, each within their own functions such as sound (a ‘sound card’) and video (a ‘video card’).

Arithmetic and Logic Unit (ALU)

The ALU is the part of central processor where the arithmetic and logic operations are carried out. These include arithmetic (e.g. adding and multiplying) and logical functions such as comparison, movement of data, etc.

Control Unit

The control unit receives program instructions, one at a time, from the main store and decodes them.

- ♦It then sends out control signals to the peripheral devices.
- ♦Registers are paths that connect the ALU to the main memory
- ♦Data buses are wires connecting the micro processor to the memory through which data flows
- ♦An address is a pattern of channels that identify a unique storage location
- ♦Toner is an electronically charged dry ink substance used in printers

Memory

The computer processing is normally much faster if the computer has the information it needs readily to hand.

The computer’s memory is also known as main store, internal store or immediate access storage. The memory will hold the following.

i) Programs, the control unit cuts on program instructions that are held in the store; these program instructions include the operating systems.

ii) Some input data. A small area of internal store is needed to take in temporarily the data that will be processed next.

iii) A working area. The computer will need an area of store to hold data that is currently being processed or is used for processing other data.

iv) Some output data. A small area of store is needed to hold temporarily the data or information that is ready for output to an output device.
Each individual storage element in the computer's memory consists of a simple circuit which can be switched on or off. These two states can be conveniently expressed by the numbers 1 and 0 respectively.

Each 1 or 0 is a bit.
Bits are grouped together in groups of eight to form bytes.
A byte may be used to represent a character for example, a letter, a number, or any other symbol. The characters formed can be grouped together to form words or figures, etc.

Since a byte has 8 bits, there are 2^8, or 256, different combinations of 1s and 0s, which is sufficient to cover numeric digits, upper and lower case alphabets, punctuation marks and other symbols.

The processing capacity of a computer is in part dictated by the capacity of its memory.
Capacity is calculated in kilo bytes (1kb = 2^{10} (1024), (megabytes = 2^{20} bytes), and gigabytes (2^{30}) or Kb, Mb and Gb.

Port
This is a socket in the CPU into which peripherals can be connected

Expansion Slot
These are access slots to where computer cards can be fixed on a CPU during upgrading

Types of Memory
There are basically two types of memory i.e. RAM and ROM.

RAM: (Random Access Memory)
This is the memory that is directly available to the processing unit. It holds the data and programs in current use. Data can be written on to or read from Random Access Memory.

RAM is 'volatile'. This means that the contents of the memory are erased when the computer's power is switched off.

Memory Cache

Primary cache
This is a small capacity but extremely fast memory chip which save a second copy of the pieces of data most recently read from or written to main memory. When the cache is full, older entries are 'flushed out' to make room for new ones. Primary cache is often part of the same chip as the CPU.

Secondary cache
This is a larger, slower cache between the primary cache and the main memory.
The principal here is that if a piece of data is accessed once it is highly likely that it will be accessed again soon after words, and so keeping it readily to hand will speed up processing.

ROM (Read Only Memory)
This is a memory chip into which fixed data is written permanently at the time of its manufacture. New data cannot be written into the memory, and so the data on the memory is unchangeable and irremovable.

ROM is 'non-volatile' memory, which means that its contents do not disappear when the computer, power source is switched off.
A computer's start-up program, known as a 'boot strap' program, is always held in a form of a ROM. 'Booting up' means running this program.

When you turn on a PC you will usually see a reference to BIOS (Basic Input/Output System). This is part of the ROM chip containing all the programs needed to control the key board, screen disk drives and so on.

2:4 OTHER PERIPHERALS

♦ **Uninterrupted Power Supply (UPS)**
It stabilises the power thus enabling the user to save his/her work before the power supply is completely terminated. Hence it's called a stabiliser.

2:5 MANUAL INPUT DEVICES

These are input devices, which are quite labour - intensive. They include the following:

Keyboard
This is a board of keys, which includes the alphabet, numbers (0-9) and some basic punctuation, together with other keys. It is used to enter data into the computer's main memory. It resembles a typewriter except for some keys like the function keys (F1, F2 etc), control keys, alter keys, escape keys etc. It mainly has three parts:
♦ The alphabetical keypad – these include letter keys A-Z
♦ The functional keypad – (F1-F12)
♦ The numeric keypad - (0-9)
There are 2 types of keyboards:

Standard Keyboard	**Enhanced Keyboard**
♦ Older style	♦ Latest style and most common
♦ Has 10 function keys on the left hand side of the keyboard	♦ Has 12 function keys at the top of the keyboard
♦ Cursor keypad is on the right and is used for numeric entry	♦ Has shift, control and alt keys on both sides of the space bar

The Function Keys

F1 – is used for help
F2 – is used for page setup/programming
F3 – is used for page break down or break up
F4 – is used for moving a group of words from one position to the other
F5 – is used for password
F6 – is used to replace a word
F7 – is used for exiting/closing the screen
F8 – is used for sizing the appearance of the screen
F9 – is used for envelope set up
F11 – is used for highlighting the appearance of the screen

Other Keys

Caps lock- is used for writing capital letters
Shift keys- used to obtain the uppercase character of a button
Enter Key – used for creating spaces between lines. They also move the cursor to the next line. It also executes commands
Back space key – is used to erase letter by letter at any cursor point. A cursor is a blinking feature that indicates a point of insertion i.e the point where the next character will appear
Space bar – it creates space between words
Delete key – it deletes error at cursor point
Insert key – it is used to insert a missing letter in a group of words
Home keys – it is used to take the cursor back home
End key- it takes the cursor either at the end of the line or end of the document
Page up/down – takes the cursor at the upper or down page
Tab key – it is used for making paragraphs
Arrow keys – are used for moving through the document
/ Forward slash
\ Back slash
: Full colon
* Asterisk
. Period
; Semicolon
? Query
, comma

Web Camera
It enables the user to take photographs and view the other person online

The VDU (Visual Display Unit) – the Monitor
This can be used in conjunction with a keyboard to display text to allow the operator to carry out a visual check on what she has keyed in.
It can also be used to give messages to the operator, and the operator can respond to messages by keying in new instructions. The monitor gives a soft copy of the data held by the computer. It's both an input and output device.

Types of VDUs

- Coloured screens which display information in various colours
- Monochrome screens which display in black and white
- Graphic screens which display information in graphs

Mouse
This is often used in conjunction with a keyboard, particularly in windows - based systems. It may be used in place of a keyboard. It's used with windows programs to provide additional flexibility to the user
Even joysticks and track balls may also be used as the mice.

Parts of a mouse
- Left- for clicking
- Right- for popping
- Middle- moving up and down the document

2:6 AUTOMATIC INPUT DEVICES
These include the following:

Modems
When the modem converts analogue signals to digital signals during data transmission, is said to be an input device.

Magnetic ink character recognition (MICR)
MICR is the recognition by a machine of special formatted characters printed in magnetic ink. This is done using ink, which contains metallic powder and special typewriters.

Optical character recognition and scanners
OCR is a method of input involving a machine that is able to read characters by optical detection of the shape of those characters. Optical (or laser) scanners can read printed documents by recognising the characters, convert them into machine code and record them.

The advantage of OCR over MICR is that the OCR can read any ordinary typed or printed text provided the quality of the input document is satisfactory.

The disadvantage however, evolves around the distinction between O and 0, then 1 and I which is a bit hard.

Optical Mark Reading (OMR)
This is normally used for numeric characters. Values are denoted by a line or cross in an appropriate box, whose position represents a value, on a pre-printed source document (or card). The card or sheet is then read by a device which senses the mark in each box and translates it into machine code.

An example would be a multiple choice question paper.

Bar Coding and Electronic Point of Sale (EPOS)
A bar code reader is a device, which reads bear codes, which are groups of marks which, by their spacing and thickness, indicate specific codes or values. Normally used in super markets.
EPOS devices use bar coding and act both as cash registers and as terminals connected to a main computer.

This enables the computer to produce useful management information such as;
♦ Sales details and analysis
♦ Stock control information
And all this very quickly

Magnetic Stripe Cards
These can be used at the door entrances where the card is passed over the reader which senses the information to the computer to open the door if the holder of the card is supposed to enter. They are also used in banks by Automated Teller Machines (ATM).

Voice recognition
A computer soft ware has been developed that can convert speech into computer sensible form. The input device needed here is Microphone. The available software currently require the user to speak very slowly, dictating one word at a time - but this all can at best be 90% accurate.

Question

a) What is the major distinction between ROM and RAM.

b) Briefly describe 8 (eight) input devices to computers.

2:7 OUTPUT DEVICES

These are devices that communicate the results of processing from the computer to the user. This could be a process or just an instruction. They include the following:

Visual Display Unit (VDU)
As out put devices, these can usually be used where there is no requirement for a permanent out put and when the volume of the out put is small. E.g. in cases of a single enquiry or current balance on account.

Speakers
These tend to output audio stored information e.g. at the airport, the computer through loud speakers may pass announcements to passengers, or you can listen to your favourite music from the computer using its speakers, etc.

Modem
This acts as an output device when the digital signals are converted into analogue signals so as to be transmitted over a telephone line.

Printers
This is a device that prints texts, graphics or images on paper producing hard copy (hard copy refers to a document on the paper as distinct from that one of the screen).

Classification of Printers
Printers can be classified as:

- ♦ Impact printers
- ♦ Non- impact printers

IMPACT PRINTERS

These mechanically strike the paper during the printing. The print elements i.e. hammer, ribbon and ink strike the paper to deposit the characters on it after relieving signals from the computer's central processing unit. Impact printers are comparatively noisy and slow.

Examples include:
Dot matrix printer- the characters it prints consist of series of dots arranged in a pattern to form the characters.
Daisy wheel – The printing mechanism involves a wheel on which available characters are located. In the course of printing, the wheel rotates as it impacts the required characters onto the paper.

NON - IMPACT PRINTERS

Here with these printers, the paper is not mechanically struck, but the printing is quickly done with the print elements like laser beams, heat, ink to produce hard copies.

Examples of these include:
Laser printers, Inkjet printers, Epson printers etc.

Differences between impact and non impact printers

♦ Non-impact printers are fast compared to the slow impact printers.
♦ Impact printers use inked ribbons yet non-impact printers use thermo or electrostatic principles.
♦ Impact printers are cheap yet non-impact printers are expensive due to the technology used to make them.

♦ Impact printers are generally noisy while non-impact printers are quite quiet.

Another classification of printers would be based on single print output i.e., character, and line or page printers.

Character printers print character-by-character - hence comparatively slow.

Line printers print an entire line at a time - hence comparatively fast and more expensive than character printers but less costly than page printers.
Page printers print the whole page at a go thus the fastest and most expensive printers.

A character can be, a number, letter, symbol, etc.

Plotters

These are devices that produce hard copy of complex drawings such as graphs, engineering, drawings, maps, curves, etc.

2:8 STORAGE DEVICES

These are items/devices that can be used to store Data or Information for subsequent use. They include the following:-

Disks

This is a device that aids in reading and writing information to and from a secondary storage device. They are the predominant form of backing storage medium nowadays because they offer direct access to data, an extremely important feature.

Data is held on a number of circular, concentric tracts on the surfaces of the disk, and is read or written by rotating the disk past read/write heads, which can write data from the CPU's memory on to disk, or can read data from the disk for input to the CPU's memory. he mechanism that causes the disk to rotate is called a disk drive.

The Disk Drive

This is the media where computer programme files reside e.g. hard disk, floppy disk, CD-Roms, magnetic tapes etc

Hard disks

A modern business PC invariably has an internal storage medium, but external disks may be used too. Everything stored by a user on the computer is stored on the hard disk. Internal storage medium. Stores most computer applications. Capacity usually 100MB. Designed with letters – C to S
Hard disks are metallic storage device on which data and information are magnetically stored on round metallic platters. Hard disk of different storage capacities are available e.g. those of 40 MB, 2GB, 4GB, 10GB, etc.

There are also removable disk packs which can be used for back-ups, mass storage or for moving files between computers.

Examples include;

♦ IDE (Integrated Drive Electronics)

♦Zip drive

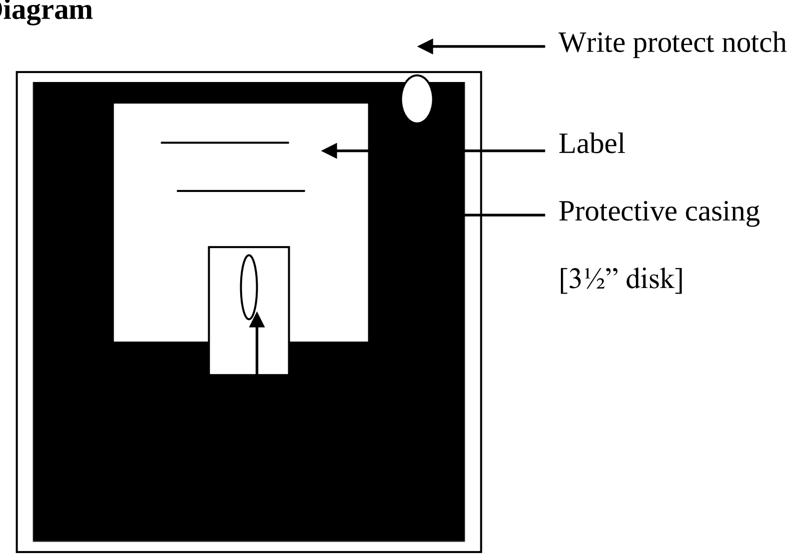
♦Jaz drive, etc.

Floppy disks

Computer data or information can be stored externally on floppy disks.

A floppy is a flat circular plastic platter held permanently in a plastic case. A normal average floppy disk is about 3½”. This can hold up to 1.44 Mb of data.

Diagram



Precautions for storing floppy diskettes

♦ Keep away from Magnetic fields

♦Keep away from Excessive heat

♦Keep away from Moisture

♦Keep away from dust

♦Avoid throwing about

♦Write protect to combat viruses

Differences between floppy disks and hard disks

♦Floppies area flexible yet hard disks are permanently fixed though a few of them (hard disks) can be moved.

♦Floppies are plastic yet hard disks are metallic.

♦Hard disks store more information that floppies

♦Floppies have lower reading capacity than hard disks.

Compact Disk-Read Only Memory (CD-Rom) Drives

External storage medium. Storage capacity is more than the floppy disk, hard drive. Designed with letters D to E

Flash Disks
More storage capacity than CDs. Holds about 178 floppy disks or 120 MB. Has high data transfer speed and compatible to operating systems like Windows XP. 2000

Tape Storage
Tape cartridge is another but now less commonly used storage device. It is not any different from audio or video cassette tape except that some are larger than normal audio cassettes.
Like any audio or video cassette, data has to be recorded along the length of the computer tape and so it is more difficult to access. It is not usually possible to read from and then write on to a single piece of tape. Reading and writing are separate operations using separate heads and so two drives are necessary for the two operations. Tape store more data than floppies. Fast tapes which can be used to create a back-up file quickly are known as tape streamers.

File update on tape storage facility is in a such way that, the changes are made on the current tape and get recorded on a completely new tape. This means that every time a change or update is to be made a completely new tape is made from the previous tape containing the most recent updates. This is what we call the grandfather - father - son relationship.

Its main advantages as far as data back-up is concerned is that should the son get lost or messed up in any way, t hen the most recently updated tape, before the son, i.e. father is obtained and changes that occurred since the production of the son are done to the father to come up with another sons - replacing the lost one.

CD-ROMS (Compact Disk - Read Only Memory)
These are small silvery disks that are read by the CD-ROM drive using a laser. They are called read-only because you can't change the data on them. Your computer can only read and copy the data on them.

Most soft ware these days are purchased on CD ROM, CD ROMs have massive libraries of data, vast collection of stereo sound chips, high colour graphics all of which take up a lot of storage space.

DVDs (Digital Video Disks) ROM
These are almost like CD-ROMs only that DVDs have more storage capacity (5 GB) with excellent access speeds, internet - based technologies which promise three - dimensional worlds, CD-quality sound and video.

Question
a) Of what advantage are the external storage systems.
b) Briefly describe 4 (four) external devices you know.

CHAPTER THREE

NETWORKS AND DATA COMMUNICATIONS

3:0 Introduction
Under this Chapter we shall look at the following;
- ♦Configuration
- ♦LANS, WANS, MAN and client-server computing

♦ Data communication

3:1 CONFIGURATIONS

The term configuration refers to the way in which computers are linked together.

♦ At one extreme an organisation may have just a single 'stand-alone' computer that can only be used by one person at a time.

♦ At another extreme, an organisation may have hundreds or thousands of computers, all able to be used simultaneously and to communicate with each other.

Centralised Processing

Centralised processing means having all the data/information processing done in a central place such as a computer centre at head office. Data will be collected at 'remote' (i.e. geographically separate) offices and other locations and sent in to the central location.

At the central location there will be:

♦ A central computer, probably a large main frame

♦ Central files, containing all the files needed for the system.

Decentralised Processing

Decentralised processing means having the data/information processing carried out at several different locations, away from the 'centre' or 'head office'. Each region, department or office will have its own processing systems, and so:

♦ There will be several different and unconnected computers in the various offices;

♦ Each computer will operate with its own programs and its own files.

Multi-user and distributed systems

In practice, information systems do not have to be entirely centralised or entirely decentralised, and a suitable mixture of centralisation and decentralisation is now normally used.

i)Local offices can have their own local systems, perhaps on PC, and also input some data to a centralised processing system.

ii)Computer systems can be networked, and there might be:

- ♦ A multi-user system; or
- ♦ A 'distributed' data processing system

Multi-user Systems

With a multi-user system there is a central computer with a number of terminals connected to it. The terminals are dumb terminals, which means that they do not include a CPU and so cannot do independent data processing.

A dumb terminal is that terminal which has no capacity for data processing.

Note:

An intelligent terminal however, is that terminal that can carry out data processing on its own without relying on the central computer.

♦ The terminals in a multi-user system might be sighted in the same room or building as the central computer, or may be geographically distant from the central computer, connected by an external data link.

Definition

Remote Access
This describes access to a central computer installation from a terminal, which is physically distant.

Remote Job Entry
This is used to describe a method of processing in which the computer user inputs his data to the computer from a remote terminal.

Distributed Processing
A distributed system is a combination of processing hardware located at a central place, e.g. a main frame computer with other, usually smaller computers located at various sites with in the organisation.

The central and dispersed computers are linked by a communication network.

A typical system might consist of a mainframe computer, linked to local mini-computers, linked to desktop PCs as intelligent terminals (see NB above), and to a range of peripheral equipment.

Key features of distributed processing include:
a) Computers distributed or spread over a wide geographical area.
b) A computer can access the information files of other computers in the system.
c) The ability for computers within the system to process data 'jointly' or 'interactively'.
d) Processing is either carried out centrally, or at dispersed locations.
e) Files are held either centrally, or at dispersed locations.
f) Authority is decentralised as processing can be performed autonomously by local computers.
g) End- users of computing facilities are given responsibility for, and control over their own data.

3:2 NET WORKS
A network is an interconnected collection of autonomous processors. With a network there is no single central computer.

There are two main types of network, a local area network (LAN) and a wide area network (WAN). The key idea of a network is that users need equal access to resources such as data, but they do not necessarily have to have equal computing power.

LANS, WANS and client-server computing.

LANS (Local Area Networks)

Definitions:
A LAN is a network of computers located in a single building or on a single site. The parts of the network are linked by computer cable rather than via telecommunications lines.

WANS (Wide Area Network)

These are networks on a number of sites, perhaps on a wide geographical scale.
WANS often use mini computers or main frames as the 'pump's that keep the data messages circulating; where as shorter-distance LANs normally use PCs for this task.

Differences between WANs and LANs

1. A WAN covers a greater geographical area unlike a LAN usually limited to a single building or site.
2. WANs will send larger computers as file servers.

3. WANs will send data over telecommunication links while LAN will use a cable.
4. WANs are normally larger than LANs and have more terminals linked to the network.
5. A ‘WAN’ can link two or more LANs using gateways.

Metropolitan Area Network (MAN)
This connects computers in a municipality

Storage Area Network (SAN)
These are computers connected by use of unique characters e.g. passwords

Definition
A gateway is a device that is used to connect two networks of a similar type.

Client - server Computing
As the name suggests, client server computing describes the relationship between the devices in the network.

Client
A client is a machine which requests a service e.g. a PC running a Spreadsheet programme which it requests from a storage machine (the sever).
A server on the other hand, is a machine dedicated to providing a particular function or service requested by client. Servers include; files servers, print services e-mail and fax servers.

Types of file servers:

Low end file server
This is used in a network of about six people or users running a couple of software applications and a database.

Mid range file server
This might support 20 to 30 users.

High end file server
Is used in a large dependent network of about 50-100 users, handling transactions, processing and an accounting system.

Network Operating System
This is a set of programmes responsible for the smooth running of a network.
When computers and other devices are linked/connected to form a network, they won’t have the characteristics of networked computers (like sharing of data) unless the network operating system is installed.
It has the following functions;
- It establishes the link between the nodes of the network.
- It monitors the operations of a network.
- It controls the recovery process when the system or part of it breaks down.

Examples of network operating systems include:-
Novell network, Windows NT, UNiX, etc.
Advantages of Client Server Computing

1. **Greater resilience**

Processing is spread over several computers. So client server systems are more resilient. Should one computer/server breakdown; other locations can carry on the processing.

2. Sharing programmes and data files

This can be shared by all the PCs on the network. With stand alone PCs, each will have its own data files and might be unnecessary duplication of data.

3. Sharing of data

Each PC in a network can do the same work, providing flexibility in sharing workloads. In a peak period, two or more people can share the work without having to leave their own desks**.**

4. Sharing peripherals

In some cases, say LAN, five PCs might share a single on-line printer where as if there were a stand alone PC, each might be given its own separate printer.

Computer sharing of peripherals is significantly of benefit especially where resources are scarce or expensive.

5. Compatibility

Client-server systems are more likely than centralised systems to have windows interfaces, making it easier to move information between applications e.g. spreadsheets and accounting programs.

Disadvantages of client-server computing

Main frames are better than client-server computing at dealing with large volumes of transactions.

It is easier to control and maintain a system centrally. Client-server computing does not favour data security compared to centralised systems.

Each location may need its own expert network administrator to keep things running smoothly. This creates unnecessary duplication of skills and over manning.

3:4 DATA COMMUNICATION

There are three methods of data communication:

1. Oral communication
2. Paper communication
3. Electronic data communication

Oral Communication

This may occur in a face-to-face situation or by telephone.

It may involve one calling the other on phone asking for particular information, which may be given verbally on the phone.

Paper Communication

Paper-based communication involves the use of internal memoranda, computer print outs and monthly accounting reports.

E.g. copies of despatch notes raised might be sent to the relevant department to be physically matched with customer's order, so that invoices can be raised.

This method means that there is a permanent 'hard copy' record of each transaction. This method may be cheaper that electronic communication, as data communications links do not need to be set up.

The disadvantages are that there may be delay in the delivery of information, particularly between sites. Also the necessity for data transcription increases the risk of error.

Electronic communication

Here information is exchanged via computers, enhancing the amount and quality of information communicated.

Details of despatches of goods from stock might be automatically passed to the sales ledger or accounting sub-system by the ware housing or stock control sub-system so that invoices can be processed.

Advantages of Electronic Communication

Speed is guaranteed since the transmission is almost instant.

Accuracy is always good since there is some kind of automation.

This method eliminates much of human processing.

Data Transmission Equipment

a) Coaxial Cables

A coaxial cable consists of one central conductor, which is surrounded with an insulator and then with the other conductor. In this way, the outer conductor prevents interference from reaching the inner coax cables are used for high-speed network data links. Also used for TVs signals e.g. Aerials.

b) Modems

For data transmission through the existing 'analogue' telephone network to be possible, there has to be a device at each end of the telephone line that can convert (Modulate) the data from digital form to analogue form, and (Demodulate) from analogue form to digital form, depending on whether the data is being sent out or received along the telephone line.

This conversion is done by devices called modems. There must be a modem at each end of the telephone line.

Digital means 'of digits or numbers'. And is in coded (binary) form.

c) Multiplexors (Concentrators)

These are devices, which are used to send data from several sources down a single line at the same time.

Multiplexing involves combining or merging signals. It accepts signals from several communicating devices and directs transmission to and from a computer along a single carrier channel.

It saves line charges as only one telephone line will be required to connect several computers.

Terminology key terms

Band Width

The amount of data that can be sent down a telecommunications line is in part determined by the bandwidth.

Definition:

Bandwidth is the range of frequencies that the channel can carry.

Frequencies are measured in cycles per second, or in Hertz. The wider the band width, the greater the number of messages that a channel can carry at any particular time.

Band Rate
This is a measure of the speed of transmission and roughly equates to number of bits per second.

Interfaces
The point of interaction between the computer and the user, principally in terms of using a display screen for in put and retrieval of information. The two principals forms of interface are often described as Graphical user interface.

Protocols
This is an agreed set of operational procedures governing the format of data being transferred, and the signals initiating, controlling and terminating the transfer.

This helps in cases of data transmission errors, which can get detected, and also take steps to recover the lost data.

Question;
1. a) What is a computer?
   b) List and briefly describe the major components of a computer.

CHAPTER FOUR

SOFTWARE CONCEPTS

4:0 Introduction
Under this Chapter we shall look at the following:-
- ♦Operating system
- ♦Application programs
- ♦Utility programs
- ♦Programming languages

Definitions
Software refers to the programmes that tell the computer what to do. Soft ware is by far the most valuable asset of a computer user.

A program is a set of instructions that a computer follows in order to produce the desired results or effects. There are 3 (three) categories of soft ware (programs):

i) The operating software;
ii) The programming languages and language translators
iii) The application software

4:1 OPERATING SYSTEM
Also referred to as the executive program

Definition:
This is a program or suite of programs, which provide the bridge between application software (such as word processing packages, spread sheets or accounting packages) and the hardware.
An operating system controls the action of other programs, which are said to run under it - under its control. It looks after such actions as disk access.

NB: All application soft ware is designed to run under a specific operating system.

Functions of an operating system
1. It checks the initial set up of the computer once it has booted - up or started via the BIOS.

(BIOS) Basic Input Output System is that module forming the part of an operating system, which controls the input and output of data to peripherals i.e., a disk, key board, monitor, mouse, etc. At times it can be stored on ROM.

2. It checks whether the hardware including peripheral devices i.e. printers, are functioning properly.
3. It calls up program files and data files from disk storage into memory.
4. Opening and closing of files, checking of file labels etc.
5. Maintenance of directories or folders in storage. A directory is a file storage.
6. Controlling input and output devices including interaction with the user information executed one by one.
7. Controlling system security e.g. monitoring the use of passwords. Ask for a password before anything is done.
8. Handling of interruptions e.g. machine failure and error reporting.
9. Managing multitasking

Multi tasking is an action which allows the computer to appear to be running several programs simultaneously e.g. sending a document you have completed for typing on a printer while working on another document and at the same time listening to your favourite tracts on CD.

Multitasking needs a suitable operating systems and sufficient memory to hold all programs and the data to be processed by each program. The main problem with multitasking is ensuring that programs don't interfere with each other. This is done by restricting the way the CPU gains access to programs.

PCs operating systems include, MS-DOS (Microsoft Disk Operating System), MS Windows 3.X, MS - Windows 95, 98, 2000, OS/2 by IBM Co., Windows NT, UNIX, Net-ware. These are all version of operating system.

4:2 WINDOWS

Early incarnations of windows, culminating in Windows 3.1 and Windows for Work groups 3.11, were not genuine operating systems in their own right, but were really an operating environment for an older Microsoft system called MS-DOS.

MS-DOS, very hostile to beginners, had all application programs run under it.

In 1993, Microsoft launched Windows N.T, a complete operating system for networks, then Windows 95, 98 and 2000.

Features of Windows 95

Features of Windows 95 include the following:-

a) A 'desktop', from which everything in the system branches out. Disk drives, folders (directories) applications and files can be placed on the desktop.
b) A 'task bar' which is always on top and which includes a start button and buttons representing every open application.
c) Long file names are supported.
d) There is a recycle bin for easy deletion of files.
e) Easy integration with widely used networking software is possible.
f) Multitasking is available (see definition above).

Windows '98
Features of Windows 98
a) It is easier to use
User interface enhancements include easier navigation, such as single-click launching of Applications, icon highlighting, forward/backward buttons, and an easy to customise start menu.

b) Greater reliability
More refinements and upgrades were made to Windows 95 and include;
♦ An internet-base resource site
♦ Testing user's hard disk and fixing problems automatic
♦ Enhanced back up and restore function

c) It is faster
The application loading, system start up, and shut down time are faster.

d) Web integration
There are a variety of features designed to enhance internet access and use of Internet facilities.

e) It is more entertaining with its better graphics and video capabilities and better support for games, hard ware such as joysticks. Later versions can even allow people to use digital video disks (DVDs), digital television
and even watch normal TV programs on their PCs.

4:3 APPLICATION SOFTWARE

This consists of programs, which carry out a task for the user as opposed to programs which control the workings of a computer.

Whenever a computer is being used, it will be under the control of an application program, e.g. controlling stock, word processing, preparing accounts, etc.

Application Packages
These are ready-made programs written to perform a particular job.

a) Off- the-shelf application packages
These are ready-made packages distributed or sold by software vendors or manufacturers.

b) Tailor made application packages
These are programs made at the customers' request encompassing customers' desires. The customer normally gives a programmer his specifications and what he wants the program to do. The programmer studies the specification compares them with the available off-the-shelf packages and if there is none that can satisfy the customer needs, then he can write a new program for the customer.

General Purpose Package
These are off-the-shelf programs that can be needed for processing of a general type though the computer user can employ the package to a variety of users of his own choice.

Spreadsheets and Word processors are examples.

Application Suites
An application suite or soft ware suite is a collection of top-of the line application program from the same vendor.

A typical software suite will often include:-
a) A Word processor - word processing program
b) Spread sheet
c) Data base
d) Presentation graphics
e) Personal information manager

Examples of application suites
- ♦ Microsoft office
- ♦ Lotus Smart Suite
- ♦Novell Perfect office
- ♦Corel Draw (for graphics)

Microsoft Office	**Lotus Smart Suite**	**Novell Perfect Office**
1. Ms-Word	Word Pro	Word Perfect 6
2. Ms- Excel	Lotus 1-2-3	Presentation
3. Access	Approach	
4. Ms - Power Point	Freelance graphics	
5. Ms - Outlook	Lotus Organiser	

Word Processors: (Word Processing Programs)
A word processor makes your writing efforts look good. Master pages of a novel, grocery lists, etc. With the right paper you can use a word processor to create file folders, labels, brochures, business cards, greeting cards, letter heads etc. all types of professional documents i.e. letters, memorandum, invoices, etc.

Examples of Word processing programs,
- ♦Word perfect for Windows
- ♦Ms-word
- ♦ Word Pro
- ♦ Word Star, etc.

Spread Sheets
A spreadsheet program is much like a bookkeeper ledger sheet with rows and columns. You can use spreadsheets programs for all kinds of instant calculations such as finding the amount of interest you will pay on a loan.

You can change and update information instantly, correct mistakes without erasing and even process charts or graphics showing statistics within no time.

You use a spreadsheet program where you want columns and rows of numbers, financial calculations etc.

Examples of Spreadsheet programs
- ♦Lotus 1-2-3
- ♦Microsoft Excel
- ♦Quattro Pro
- ♦Consolidation

Data Base Programs
These help in management of lists of data with great ease e.g. a list of clients' addresses, items in stock, etc.

Examples of Data base programs include:
- ♦ Dbase IV
- ♦ Parodox for Windows
- ♦ Ms - Access

♦Ms - Fox Pro
♦Approach
♦Oracle etc.

Presentation Graphic Programs
These kind of programs can help to come up with quality drawings.

They can also enable you create printed reports; handouts or notes to be used while you are speaking.

Enable you to create a self-running slide show-cartoons, that can play on any computer.

Enable you to create slides for business presentation including texts, graphs or clip art images e.g. a company logo.
Examples of presentation graphic programs
♦ Ms- Power point
♦Freelance graphics
♦ Presentations
♦ Havard graphics
♦Adobe persuasion
♦Corel presents

4:4 PERSONAL INFORMATION MANAGERS (PIM)

These help you keep track of appointments, to list things you have to do and information on your contacts.

PIMs can do the following:
♦List all phone calls you need to make in a day
♦Check co-workers schedules, conflicts and automatically set up meetings that every one can attend
♦Prioritise your daily tasks so that the most important work gets done first
♦Track completed work so that you can tell some one exactly when you finished a certain report
♦Let you check your workload for a day, week or month at a glance

Examples of PIMs include:
♦ Ms-Outlook
♦Lotus organiser
♦Schedule +
♦Act!, etc.

4:5 INTEGRATED PACKAGES

An integrated package is a single program that modules such things as word processing, spread sheets, graphics, data base management and communications.

Accounting programs usually comprise modules integrated to form a large compile system or program. There may be a module for each of the sales ledger system, the purchase ledger, nominal ledger, trial balance, etc.

Popular integrated packages include:

♦ Ms Works
♦ Claris works
♦ Geo work pro

4:6 UTILITY PROGRAMS

These are programs or set of programs that enhance the work of an operating system.
Utility programs i.e. Norton's utilities can recover data, manipulate files, re-organise data on disks, check for and fix errors on disks, etc.

Vaccines and a virus guards are also utility programs intended to protect virus infection.

VIRUSES
A virus is a piece of soft ware which infects programs and data and possibly damages them, and which replicates itself.

Viruses need an opportunity to spread. The programmers of viruses therefore place viruses in the kind of software, which is most likely to be copied. This includes;

a) Free soft ware (e.g. from the internet)
b) Pirated software (cheaper than original versions)
c) Games software (wide appeal)

Types of Viruses

Trojans
A Trojan is a program that while visibly performing one function, it secretly carries out another e.g. as you can play a game, it secretly destroys data or files. Trojans don't copy themselves on target disks.

Worms
This normally survives by copying and replicating itself inside the computer system it has entered without necessarily altering that system.

Bombs (Logic and time bombs)

Time bombs
These are normally released at given dates in a year, say fools day, etc.

Logic bombs
These are normally triggered by certain events e.g. a disk utilised up to a certain percentage.

Identification of Viruses
Some viruses are detected before they do any damage while others are identified when they are activated.
Viruses may be controlled in the following ways;
1. Use of virus guards
These guard against virus infections. Unfortunately, new powerful viruses can attack and break through some virus guards.
2. Use of anti-virus software e.g. Doctor Solomon's took kit.

These are programs used to clear viruses from a system. They must always be upgraded to deal with new virus.

3. Organisations must have procedures to guard against the introduction of unauthorised software to their system.
4. Organisations, as a matter of routine, should ensure that any disk received from outside is virus free before the data on the disk is down loaded.
5. Firewalls
6. Any irregularities in a widely used program must be rectified as they come to light.

Transmission of Viruses

Viruses are transmitted in a number of ways

- ♦Using infected disks in non-infected computers.
- ♦Buying software from non certified vendors can result in buying infected software.
- ♦Buying software, which are not well tested-say from the Internet.
- ♦Getting connected to an infected network.

4:7 PROGRAMMING LANGUAGES

Computer programs are normally manufactured/written using programming languages.
There are two recognised levels of programming languages.

- ♦ Low level language
- ♦ High-level language

a) Low Level Languages

(i) Machine Code (first generation language)

This program is as old as the computer itself. It was the 1st language used to Program Computers and indeed is the only language the computer recognises and understands.

Instructions in machine language are written or coded as Os and Is (Binary digits). Every program must be written in machine codes before the computer can do any thing with it. These languages are so hard to learn and complicated that is why the assembly language was subsequently developed.

(ii) Assembly Language (second generation language)

These are also machine specific, but the tasks of learning and writing the language is made easier than with machine language because they are written in 'symbolic' form.

Instead of using machine code, the programmer is able to use easily learned and understood operation mnemonics e.g. ADD, SUB and MULT.

b) High-level Languages

To over-come the low level language difficulty of machine dependency, high-Level languages were developed. Such programming languages, with an extensive vocabulary of words and symbols, are used to instruct a computer to carry out the necessary procedures, regardless of the type of machine being used.

Advantages of high-level languages over low-level languages include:

♦The productivity of programmers is improved as program writing can take place in a very short time compared with low-level language.
♦The programs developed can be used on any types of computers without getting re-written.
♦They speed up testing and error correction.
♦ High - level languages are easier to understand and use.

A) Third generation languages
These are problems oriented programming languages, which have been created to deal with particular types of data processing problems. They include:

a) COBOL - is used for business data processing.
b) BASIC - Beginner al purpose symbolic instruction code) - designed for beginners, particularly on microcomputers.
c) FORTRAN is a scientific language
d) Pascal suitable for structured programming.
e) C- An advanced language originally used for programming in the UNIX, now also used to develop windows programs.

Other programming languages include C++, ALGOL, APL, PILOT, SNOBOL, etc.

Compilers and Interpreters
The high - level language program has to be translated into machine code before it can be used. This is done by **compiler programs**, by turning a source program into an object program.

An interpreter does the same sort of job as a compiler, but in a different way.
It takes a program written in a high level program language and executes it, statement by statement (i.e. instruction by instruction) directly during the running of the program.

B) Fourth Generation Language (4GL)
These are languages intended to help computer users or programmers develop their own application programs more quickly and cheaply.

♦A 4GL requires fewer lines of code to write and develop a program than a 3 G Language.
♦ A 4GL, by using a menu system for example, allows users to specify what they require, rather than describe the procedures by which these requirements are met.
The detail is done by the 4GL software.

LIST OF ABBREVIATIONS

ABBREVIATION	**ABBREVIATION IN FULL**
4.GL	Fourth Generation Language
ALU	Arithmetic Logic Unit
AOL	America on Line
AS II	America National Standard Code for Inform date Interchange
ATM	Automated Teller Machine
BASIC	Beginners All Purpose Symbolic Codes
BIOS	Basic Input – Output System

BIT	Binary Digit
BTM	Business Teller Machine
CD	Compact Disk
CIS	Computer Information System
CLS	Clear Screen
COBOL	Common Business Oriented Language
CPU	Central Processing Unit
CU	Control Unit
DBMS	Database Management System
DDL	Data Definition Language
DEL	Delete
Dir	Directory
Disk Drives	Media where computer programme files reside e.g., Hard disks, floppy Disks, CD-ROM, Magnetic tapes etc.
DML	Data Manipulation Language
DOS	Disk Operating System
DPC	Desktop Personal Computer
Drives	External storage medium storage capacity more than floppy and less then hard disk drive, designed with letters D…E.
DTP	Desk top Publishing
DVD	Digital Video Disk
E-mail	Electronic Mail
EMF	Electronic Magnetic Fields
EPOS	Electronic Point of Scale
FORTAN	Formula Transaction
GB	Byte
GUI	Graphical User Interface - medium through user interacts with a CP
Hard Disk Drive	Internal Storage mechanism stores most computer applications. Capacity 100MB designed work letters
HLL	High Level Language
IBM	International Business Machine
ILL	Intermediate Level Language
INTERNET	International Network
IRR	Internal Rate of Return
IT	Information Technology
KB	Kilo Bytes
KIPS	Kilo Instructions Per Second - its Speed
KISS	Keep it small Simple
LAN	Local Area Network
LLL	Low Level Language
MAN	Metropolitan Area Net – Work
MB	Mega Byte
MICR	Magnetic Ink Character Recognition
MIPS	Millions Instructions per Second
MODEM	Modulation Demolecular
MS DOS	Micro Soft Disk Operating System
Ms Excel	Micro soft Excel
MULT	Multiply
NPV	Net Present Value
NT	Net Work
OCR	Optical character Recognition

OS	Operating System
OUR	Optical Work Reading
PC	Personal Computer
PIN	Personal Identification Number
RAM	Random Access Memory
ROM	Read only Memory
SAN	Storage Area Network
SDLC	System Development Life Cycle
SSDM	Special Standard System Development management maintenance
SSM	Special Standard System Management/maintenance
SQL	Structured Query Language
SUB	Subtract
UPS	Uninterrupted Power Supply
URL	Uniform Resource Locater
VAN	Value Added Network
VDU	Visual Display Unit
W.W.W	World Wide Website
Web Server	Software that delivers web pages and contains of web sites.

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CPH 104: Mental Health

Psychiatric nursing

Course description

Psychiatric nursing or **mental health nursing** is the specialty of nursing that cares for people of all ages with mental illness or mental distress, such as schizophrenia, bipolar disorder, psychosis, depression or dementia. Nurses in this area receive more training in psychological therapies, building a therapeutic alliance, dealing with challenging behavior, and the administration of psychiatric medication. The term mental health encompasses a great deal about a single person, including how we feel, how we behave, and how well we function. This single aspect of our person cannot be measured or easily reported but it is possible to obtain a global picture by collecting subjective and objective information to delve into a person's true mental health and well-being.

Course objectives

- To assess the impact of patients sleeping adequate hours on a regular sleeping cycle
- To find out if patient have a lack of interest in communication with other people
- To find out the impact of patients eating and maintaining an adequate nutritional status?
- To find out the ability of patients to perform activities of daily living present (bathing, dressing, toileting oneself)
- To assess the impact of the patients contributing to society and maintain employment?
- To find out if the patients show a difficulty with memory or recognizance

Course Content

History

Interventions

Physical and biological interventions

Psychosocial interventions

Therapeutic relationship aspects of psychiatric nursing

Organization of mental health care

Case study

History

The history of psychiatry and psychiatric nursing, although disjointed, can be traced back to ancient philosophical thinkers. Marcus Tullius Cicero, in particular, was the first known person to create a questionnaire for the mentally ill using biographical information to determine the best course of psychological treatment and care. Some of the first known psychiatric care centers were constructed in the Middle East during the 8th century. The medieval Muslim physicians and their attendants relied on clinical observations for diagnosis and treatment.

In 13th century medieval Europe, psychiatric hospitals were built to house the mentally ill, but there were not any nurses to care for them and treatment was rarely provided. These facilities functioned more as a housing unit for the insane. Throughout the highpoint of Christianity in Europe, hospitals for the mentally ill believed in using religious intervention. The insane were partnered with "soul friends" to help them reconnect with society. Their primary concern was befriending the melancholy and disturbed, forming intimate spiritual relationships. Today, these soul friends are seen as the first modern psychiatric nurses.

In the colonial era of the United States, some settlers adapted community health nursing practices. Individuals with mental defects that were deemed as dangerous were incarcerated or kept in cages, maintained and paid fully by community attendants. Wealthier colonists kept their insane relatives either in their attics or cellars and hired attendants, or nurses, to care for them. In other communities, the mentally ill were sold at auctions as slave labor. Others were forced to leave town. As the population in the colonies expanded, informal care for the community failed and small institutions were established. In 1752 the first "lunatics ward" was opened at the Pennsylvania Hospital which attempted to treat the mentally ill. Attendants used the most modern treatments of the time: purging, bleeding, blistering, and shock techniques. Overall, the attendants caring for the patients believed in treating the institutionalized with respect. They believed if the patients were treated as reasonable people, then they would act as such; if they gave them confidence, then patients would rarely abuse it.

The 1790s saw the beginnings of moral treatment being introduced for people with mental distress The concept of a safe asylum, proposed by Phillipe Pinel and William Tuke, offered protection and care at institutions for patients who had been previously abused or enslaved. In the United States, Dorothea Dix was instrumental in opening 32 state asylums to provide quality care for the ill. Dix also was in charge of the Union Army Nurses during the American Civil War, caring for both Union and Confederate soldiers. Although it was a promising movement, attendants and nurses were often accused of abusing or neglecting the residents and isolating them from their families.

The formal recognition of psychiatry as a modern and legitimate profession occurred in 1808In Europe, one of the major advocates for mental health nursing to help psychiatrists was Dr. William Ellis. He proposed giving the "keepers of the insane" better pay and training so more respectable, intelligent people would be attracted to the profession. In his 1836 publication of Treatise on Insanity, he openly stated that an established nursing practice calmed depressed patients and gave hope to the hopeless. However, psychiatric nursing was not formalized in the United States until 1882 when Linda Richards opened Boston City College. This was the first school specifically designed to train nurses in psychiatric care. The discrepancy between the founding of psychiatry and the recognition of trained nurses in the field is largely attributed to the attitudes in the 19th century which opposed training women to work in the medical field.

In 1913 Johns Hopkins University was the first college of nursing in the United States to offer psychiatric nursing as part of its general curriculum. The first psychiatric nursing textbook, Nursing Mental Diseases by Harriet Bailey, was not published until 1920. It was not until 1950 when the National League for Nursing required all nursing schools to include a clinical experience in psychiatry to receive national accreditation. The first psychiatric nurses faced difficult working conditions. Overcrowding, under-staffing and poor resources required the continuance of custodial care. They were pressured by an increasing patient population that rose dramatically by the end of the 19th century. As a result, labor organizations formed to fight for better pay and fewer hours. Additionally, large asylums were founded to hold the large number of mentally ill, including the famous Kings Park Psychiatric Center in Long Island, New York. At its peak in the 1950s, the center housed more than 33,000 patients and required its own power plant. Nurses were often called "attendants" to imply a more humanitarian approach to care. During this time, attendants primarily kept the facilities clean and maintained ordered among the patients. They also carried out orders from the physicians.

In 1963, President John F. Kennedy accelerated the trend towards deinstitutionalization with the Community Mental Health Act. Also, since psychiatric drugs were becoming more available allowing patients to live on their own and the asylums were too expensive, institutions began shutting down. Nursing care thus became more intimate and holistic. Expanded roles were also developed in the 1960s allowing nurses to provide outpatient services such as counseling, psychotherapy, consultations, prescribing medications, along with the diagnosis and treatment of mental illnesses.

The first developed standard of care was created by the psychiatric division of the American Nurses Association (ANA) in 1973. This standard outlined the responsibilities and expected quality of care of nurses.

The term mental health encompasses a great deal about a single person, including how we feel, how we behave, and how well we function. This single aspect of our person cannot be measured or easily reported but it is possible to obtain a global picture by collecting subjective and objective information to delve into a person's true mental health and well being. When identifying mental health wellness and planning interventions, here are a few things to keep in mind when completing a thorough mental health assessment in the nursing profession:

- Is the patient sleeping adequate hours on a regular sleeping cycle?
- Does the patient have a lack of interest in communication with other people?
- Is the patient eating and maintaining an adequate nutritional status?
- Is the ability to perform activities of daily living present (bathing, dressing, toileting one self)?
- Can the patient contribute to society and maintain employment?
- Is the ability to reason present?
- Is safety a recurring issue?
- Does the patient often make decisions without regards to their own safety or the safety of others?
- Does the patient show a difficulty with memory or recognizance?

Interventions

Nursing interventions may be divided into the following categories:

Physical and biological interventions

Psychiatric medication

Psychiatric medication is a commonly used intervention and many psychiatric mental health nurses are involved in the administration of medicines, both in oral (e.g. tablet or liquid) form or by intramuscular injection. Nurse practitioners can prescribe medication. Nurses will monitor for side effects and response to these medical treatments by using assessments. Nurses will also offer information on medication so that, where possible, the person in care can make an informed choice, using the best evidence ,available.

Electroconvulsive therapy

Psychiatric mental health nurses are also involved in the administration of the treatment of electroconvulsive therapy and assist with the preparation and recovery from the treatment, which involves an anesthesia. This treatment is only used in a tiny proportion of cases and only after all other possible treatments have been exhausted. Approximately 85% of clients receiving ECT have major depression as the indication for use, with the remainder having another mental illness such as schizoaffective disorder, mania or schizophrenia.

Physical care

Along with other nurses, psychiatric mental health nurses will intervene in areas of physical need to ensure that people have good levels of personal hygiene, nutrition, sleep,mentor and etc. as well as tending to any concomitant physical ailments.

Psychosocial interventions

Psychosocial interventions are increasingly delivered by nurses in mental health settings and include psychotherapy interventions such as cognitive behavioural therapy, family therapy and less commonly other interventions such as milieu therapy or psychodynamic approaches. These interventions can be applied to a broad range of problems including psychosis, depression, and anxiety. Nurses will work with people over a period of time and use psychological methods to teach the person psychological techniques that they can then use to aid recovery and help manage any future crisis in their mental health. In practice, these interventions will be used often, in conjunction with psychiatric medications. Psychosocial interventions are based on evidence based practice and therefore the techniques tend to follow set guidelines based upon what has been demonstrated to be effective by nursing research. There has been some criticism that evidence based practice is focused primarily on quantitative research and should reflect also a more qualitative research approach that seeks to understand the meaning of people's experience.

Spiritual interventions

The basis of this approach is to look at mental illness or distress from the perspective of a spiritual crisis. Spiritual interventions focus on developing a sense of meaning, purpose and hope for the person in their current life experience. Spiritual interventions involve listening to the person's story and facilitating the person to connect to God, a greater power or greater whole, perhaps by using meditation or prayer. This may be a religious or non-religious experience depending on the individual's own spirituality. Spiritual interventions, along with psychosocial interventions, emphasize the importance of engagement, however, spiritual interventions focus more on caring and 'being with' the person during their time of crisis, rather than intervening and trying and 'fix' the problem. Spiritual interventions tend to be based on qualitative research and share some similarities with the humanistic approach to psychotherapy.

Therapeutic relationship

Main article: Therapeutic relationship

As with other areas of nursing practice, psychiatric mental health nursing works within nursing models, utilizing nursing care plans, and seeks to care for the whole person. However, the emphasis of mental health nursing is on the development of a therapeutic relationship or alliance. In practice, this means that the nurse should seek to engage with the person in care in a positive and collaborative way that will empower the patient to draw on his or her inner resources in addition to any other treatment they may be receiving.

Therapeutic relationship aspects of psychiatric nursing

The most important duty of a psychiatric nurse is to maintain a positive therapeutic relationship with patients in a clinical setting. The fundamental elements of mental health care revolve around the interpersonal relations and interactions established between professionals and clients. Caring for people with mental illnesses demands an intensified presence and strong a desire to be supportive. Dziopa and Ahern assert that there are nine critical mental health aspects of the psychiatric nursing practicum: understanding and empathy, individuality, providing support, being there/being available, being 'genuine', promoting equality, demonstrating respect, demonstrating clear boundaries, and demonstrating self-awareness for the patient.

Understanding and empathy

Understanding and empathy from psychiatric nurses reinforces a positive psychological balance for patients. Conveying an understanding is important because it provides patients with a sense of importance. The expression of thoughts and feelings should be encouraged without blaming, judging or belittling. Feeling important is significant to the lives of people who live in a structured society, who often stigmatize the mentally ill because of their disorder. Empowering patients with feelings of importance will bring them closer to the normality they had before the onset of their disorder. When subjected to fierce personal attacks, the psychiatric nurse retained the desire and ability to understand the patient. The ability to quickly empathize with unfortunate situations proves essential. Involvedness is also required when patients expect nursing staff to understand even when they are unable to express their needs verbally. When a psychiatric nurse gains understanding of the patient, the chances of improving overall treatment greatly increases.

Individuality

Individualized care becomes important when nurses need to get to know the patient. To obtain this knowledge the psychiatric nurse must see patients as individual people with lives beyond their mental illness. Seeing people as individuals with lives beyond their mental illness is imperative in making patients feel valued and respected In order to accept the patient as an individual, the psychiatric nurse must not be controlled by his or her own values, or by ideas and pre-understanding of mental health patients. Individual needs of patients are met by bending the rules of standard interventions and assessment. Psychiatric/mental health nurses spoke of the potential to 'bend the rules', which required an interpretation of the unit rules and the ability to evaluate the risks associated with bending them.

Providing support

Successful therapeutic relationships between nurses and patients need to have positive support. Different methods of providing patients with support include many active responses. Minor activities such as shopping, reading the newspaper together, or taking lunch/dinner breaks with patients can improve the quality of support provided. Physical support may also be used and is manifested through the use of touch. Patients described feelings of connection when the psychiatric nurses hugged them or put a hand on their shoulder. Psychiatric/mental health nurses in Berg and Hallberg's study described an element of a working relationship as comforting through holding a patient's hand. Patients with depression described relief when the psychiatric nurse embraced them. Physical touch is intended to comfort and console patients who are willing to embrace these sensations and share mutual feelings with the psychiatric nurses.

Being there and being available

In order to make patients feel more comfortable, the patient care providers make themselves more approachable, therefore more readily open to multiple levels of personal connections. Such personal connections have the ability to uplift patients' spirits and secure confidentiality. Utilization of the quality of time spent with the patient proves to be beneficial. By being available for a proper amount of time, patients open up and disclose personal stories, which enable psychiatric/mental health nurses to understand the meaning behind each story. The outcome results in nurses making every effort to attaining a non-biased point of view. A combination of being there and being available allows empirical connections to quell any negative feelings within patients.

Being genuine

The act of being genuine must come from within and be expressed by nurses without reluctancy. Genuineness requires the psychiatric/mental health nurse to be natural or authentic in their interactions with the patient. In his article about pivotal moments in therapeutic relationships, Welch found that psychiatric nurses must be in accordance with their values and beliefs. Along with the previous concept, O'brien concluded that being consistent and reliable in both punctuality and character makes for genuinity. Schafer and Peternelj-Taylor believe that a psychiatric/mental health nurse's 'genuineness' is determined through the level of consistency displayed between their verbal and non-verbal behavior. Similarly, Scanlonfound that genuineness was expressed by fulfilling intended tasks. Self disclosure proves to be the key to being open and honest. Self-disclosure involves the psychiatric/mental health nurse sharing life experiences. Self-disclosure is also essential to therapeutic relationship development because as the relationship grows patients are reluctant to give any more information if they feel the relationship is too one sided. Multiple authors found genuine emotion, such as tearfulness, blunt feedback, and straight talk facilitated the therapeutic relationship in the pursuit of being open and honest The friendship of a therapeutic relationship is different to a sociable friendship because the therapeutic relationship friendship is asymmetrical in nature. The basic concept of genuineness is centered on being true to one's word. Patients would not trust nurses who fail in complying with what they say or promise.

Promoting equality

For a successful therapeutic relationship to form, a beneficial co-dependency between the nurse and patient must be established. A derogatory view of the patient's role in the clinical setting dilapidates a therapeutic alliance. While patients need psychiatric/mental health nurses to support their recovery, psychiatric/mental health nurses need patients to develop skills and experience. Psychiatric nurses convey themselves as team members or facilitators of the relationship, rather than the leaders. By empowering the patient with a sense of control and involvement, psychiatric nurses encourage the patient's independence. Sole control of certain situations should not be embedded in the nurse. Equal interactions are established when psychiatric nurses talk to patients one-on-one. Participating in activities that do not make one person more dominant over the other, such as talking about a mutual interest or getting lunch together strengthen the levels of equality shared between professionals and patients. This can also create the "illusion of choice"; giving the patient options, even if limited or confined within structure.

Demonstrating respect

To develop a quality therapeutic relationship psychiatric/mental health nurses need to make patients feel respected and important. Accepting patient faults and problems is vital to convey respect; helping the patient see themselves as worthy and worthwhile.

Demonstrating clear boundaries

Boundaries are essential for protecting both the patient and the psychiatric/mental health nurse and maintaining a functional therapeutic relationship. Limit setting helps to shield the patient from embarrassing behavior and instills the patient with feelings of safety and containment. Limit setting also protects the psychiatric/mental health nurse from "burnout" preserving personal stability; thus promoting a quality relationship.

Demonstrating self-awareness

Psychiatric nurses recognize personal vulnerability in order to develop professionally. Required knowledge on humanistic, basic human values and self-knowledge improves the depth of understanding the self. Different personalities affect the way psychiatric nurses respond to their patients. The more self-aware, the more knowledge on how to approach interactions with patients. Interpersonal are skills needed to form relationships with patients were acquired through learning about oneself. Clinical supervision was found to provide the opportunity for nurses to reflect on patient relationships, to improve clinical skills and to help repair difficult relationships The reflections articulated by psychiatric nurses through clinical supervision help foster self-awareness.

Organization of mental health care

Psychiatric mental health nurses work in a variety of hospital and community settings.

People generally require an admission to hospital, voluntarily or involuntarily if they are experiencing a crisis- that means they are dangerous to themselves or others in some immediate way. However, people may gain admission for a concentrated period of therapy or for respite. Despite changes in mental health policy in many countries that have closed psychiatric hospitals, many nurses continue work in hospitals though patient length of stay has decreased significantly.

Community Nurses who specialize in mental health work with people in their own homes (case management) and will often emphasize work on mental health promotion. Psychiatric mental health nurses also work in rehabilitation settings where people are recovering from a crisis episode and the where the aim is social inclusion and a return to living independently in society. These nurses are sometimes referred to as community psychiatric nurses (the term psychiatric has been retained, but is being gradually replaced with the title "Community Mental Health Nurse" or CMHN)).

Psychiatric mental health nurses also work in forensic psychiatry with people who have mental health problems and have committed crimes. Forensic mental health nurses work in adult prisons, young offenders' institutions, medium secure hospitals and high secure hospitals. In addition forensic mental health nurses work with people in the community who have been released from prison or hospital and require on-going mental health service support.

People in the older age groups who are more prone to dementia tend to be cared for apart from younger adults. Admiral Nurses are specialist dementia nurses, working in the community, with families, carers and supporters of people with dementia. The Admiral Nurse model was established as a direct result of the experiences of family carers. The Admiral nurse role is to work with family carers as their prime focus, provide practical advice, emotional support, information and skills, deliver education and training in dementia care, provide consultancy to professionals working with people with dementia and promote best practice in person- centred dementia care.

Psychiatric mental health nurses may also specialize in areas such as drug and alcohol rehabilitation, or child and adolescent mental health.

Case study

Canada

The registered psychiatric nurse is a distinct nursing profession in all of the four western provinces. Such nurses carry the designation "RPN". In Eastern Canada, an Americanized system of psychiatric nursing is followed. Registered Psychiatric Nurses can also work in all three of the territories in Canada; although, the registration process to work in the territories varies as the psychiatric nurses must be licensed by one of the four provinces.

New Zealand

Mental Health Nurses in New Zealand require a diploma or degree in nursing. All nurses are now trained in both general and mental health, as part of their three year degree training programme. Mental health nurses are often requested to complete a graduate diploma or a post graduate certificate in mental health, if they are employed by a District Health Board. This gives additional training that is specific to working with people with mental health issues.

UK

In the UK and Ireland the term psychiatric nurse has now largely been replaced with mental health nurse. Mental health nurses undergo a 3-4 year training programme at either diploma or degree level (Diploma courses are no longer available at most universities), in common with other nurses. However, most of their training is specific to caring for clients with mental health issues.

ANP (advanced nurse practitioners) - this requires completion of a masters programme. The role includes prescribing medications, assessing clients, being on call for hospital wards and delivering psychosocial interventions to clients

US

In North America, there are three levels of psychiatric nursing.

- The licensed vocational nurse (licensed practical nurse in some states) and the licensed psychiatric technician may dispense medication and assist with data collection regarding psychiatric and mental health clients.

- The registered nurse or registered psychiatric nurse has the additional scope of performing assessments and may provide other therapies such as counseling and milieu therapy.

- The advanced practice registered nurse (APRN) either practices as a clinical nurse specialist or a nurse practitioner after obtaining a Master's degree in psychiatric-mental health nursing. Psychiatric-mental health nursing (PMHN) is a nursing specialty. The course work in a Master's degree program includes specialty practice. APRN's assess, diagnose, and treat individuals or families with psychiatric problems/disorders or the potential for such disorders, as well as performing the functions associated with the basic level. They provide a full range of primary mental health care services to individuals, families, groups and communities, function as psychotherapists, educators, consultants, advanced case managers, and administrators. In many states, APRN's have the authority to prescribe medications. Qualified to practice independently, psychiatric-mental health APRN's offer direct care services in a variety of settings: mental health centers, community mental health programs, homes, offices, HMOs, etc.

Psychiatric nurses who earn doctoral degrees (PhD, DNSc, EdD) often are found in practice settings, teaching, doing research, or as administrators in hospitals, agencies or schools of nursing.

Work-related stress in nursing

It is now almost universally recognized that nursing is, by its very nature, a stressful occupation.

It is now almost universally recognized that nursing is, by its very nature, a stressful occupation. "Everyday the nurse confronts stark suffering, grief and death as few other people do. Many nursing tasks are mundane and unrewarding. Many are, by normal standards, distasteful and disgusting. Others are often degrading; some are simply frightening."

The humane face of nursing, P. Hingley, *Nursing mirror*, No. 159, 1984

Nursing was chosen as one of the occupations on which the ILO has commissioned a manual on stress prevention. The manual, entitled *Work-related stress in nursing: Controlling the risk to health*, by Professor T. Cox and Dr. A. Griffiths, with Professor S. Cox (CONDIT/T/WP.4/1996), is available upon request from the Conditions of Work Branch. The following section is taken from the manual.

Sources of stress in nursing

The role of nursing is associated with multiple and conflicting demands imposed by nurse supervisors and managers, and by medical and administrative staff. Such a situation appears to lead to work overload and possible to role conflict. One form of such conflict often mentioned in surveys of nurses relates to the conflict inherent in the instrumental and goal-oriented demands of "getting the patient better" and those related to providing emotional support and relieving patient stress. Role conflict of this kind may be most obvious when dealing with patients who are critically ill and dying. Indeed, one of the areas of nursing that has attracted particular attention has been critical or intensive care nursing. Health care is also a sector which suffers a high rate of violent behaviour (see our pages on violence at work).

Many studies on stress in nursing have attempted to measure, or have speculated on, the effects of such stress on nurses' health and well-being. There appears to be general agreement that the experience of work-related stress generally detracts from the quality of nurses' working lives, increases minor psychiatric morbidity, and may contribute to some forms of physical illness, with particular reference to musculoskeletal problems, stress and depression.

The control cycle approach to stress prevention for nurses

Based on practical examples, the manual goes on to explain how stress in nursing can best be reduced through the application of the control cycle approach and risk assessment/risk management techniques. This approach is summarized in the following way.

The control cycle approach to stress management for nursing

Risk assessment

1. **Recognition** that nurses are experiencing stress through work.
2. **Analysis** of potentially stressful situations confronting nurses, with the identification of the psycho-social and other hazards involved, the nature of the harm that they might cause, and the possible mechanisms by which the hazards, the experience of stress and the harm are related.
3. **Estimation and evaluation** of the risk to nurses' health associated with exposure to those hazards through the experience of stress, and the justification of intervening to reduce stress and its effects.

Risk management

1. **Design** of reasonable and practicable stress management (control) strategies.
2. **Implementation** of those strategies.
3. **Monitoring and evaluation** of the effects of those strategies feeding back into a reassessment of the whole process from steps 1 and 2 forwards.

Participation in decision-making as a strategy for job-related strain, S.E. Jackson, *Journal of Applied Psychology*, Vol.68, 1983

The authors of the manual cite growing evidence from several different areas of organizational life in support of the success of the control cycle approach, particularly in terms of an improvement of the attitude of nurses to their jobs, a decline in ill-health and a consequent decrease in rates of absenteeism.

Job Stress and the Nursing Profession

Nurses are exposed to many stressful demands and pressures and are therefore at heightened risk for an array of health, safety, and other problems. This article provides an overview of stress among nurses, including job features and workplace characteristics that contribute to the high stress levels. It also describes the effect that nursing stress has on the individual's health, safety, and well-being as well as on healthcare organizations. Finally, it discusses approaches that healthcare organizations can take to prevent or reduce nursing stress and its negative consequences.

Stress as a Workplace Problem

Stress is pervasive in the American workforce. One fourth of workers in the United States view their jobs as the top stressor in their lives, and 26%-52% of workers report moderate-to-high levels of stress at work. Furthermore, 75% of employees believe that they incur more on-the-job stress than workers did a generation ago. Work-related stress is more strongly associated with health complaints than are financial or family problems.

How is this ubiquitous concept defined? As it has garnered increasing attention from public health and other researchers,several definitions of job stress have surfaced over the past few decades. The National Institute for Occupational Safety and Health (NIOSH) defines job stress as "the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker."[1] Other definitions of job stress emphasize that it is an adverse reaction to excessive job pressures and demands.[6] Still other definitions assert that job stress occurs when workers do not have the decision-making authority and skill levels to meet the demands of the job and when the efforts they make on the job are not matched by the job's rewards (eg, support, respect, security, or opportunities for advancement and income). Although these concepts differ slightly, each conveys the general idea that job stress arises when a person lacks adequate resources (eg, skills, equipment, support, training) to manage the demands of his or her job effectively.

Stress engendered by an inability to meet work demands can lead to illness, injury, and psychological distress. An impressive body of empirical research supports the link between job stress and problems in health and safety. Mood and sleep disturbances, upset stomach, headaches, and disrupted familial relationships are common early manifestations of job stress. In addition, rapidly accumulating evidence suggests that stress at work plays an important role in high blood pressure and elevated cholesterol levels, cardiovascular disease, infectious and autoimmune diseases, anxiety and depression, and accidents and injuries.

Job stress has far-reaching consequences, not only for the health and safety of workers but also for employers. Stress contributes to outcomes that threaten organizational success, including physical injuries at work, absenteeism, turnover, reduced productivity, diminished job satisfaction, low morale, and burnout. Job stress is believed to account for approximately 50% of all workplace absences and for as much as 40% of employee turnover. These and other stress-related outcomes result in considerable losses to industry, costing employers up to $60 billion per year.

Significant financial costs associated with job stress also are absorbed by the US economy. Econometric analyses show that healthcare expenditures have increased nearly 50% for workers who perceive their jobs as stressful and nearly 200% for those who report high levels of job stress and depression. According to national estimates, the total cost of job stress incurred by the US economy ranges from $250-$300 billion annually.

10 Strategies to Cope with Stress in Nursing

In an ideal world, there will be nostress in nursing. The nurse would arrive to work well rested, would have all of her personal affairs intact so as not to interfere with her work, and she would never need to go out for a smoke break. She would have an ideal body weight with a healthy and consistent diet. The nurse in the ideal world would always have the opportunity to take a lunch break, would be successfully climbing the nursing career ladder, would not need to take prescriptions to help with mood, sleep or stress, and would endure a whole shift without any physical pain. In this imaginary utopia, nurses would watch out for each other and would always be there to assist one another, they would encourage each other routinely, and they would also be immune to being scoffed at, ignored or demeaned by any other healthcare worker.

Sadly, I know nurses that would be tickled to have just two or three of these conditions satisfied! The truth is, most nurses take better care of their patients and their children than they do of themselves or each other.

The American Nurses' Association (ANA) Code of Ethics has nine tenets. One of these tenets is especially difficult to support in nursing practice.

The Fifth Tenet States:

"The nurse owes the same duties to self as to others, including the responsibility to preserve integrity and safety, to maintain competence, and to continue personal and professional growth."1

I understand this to mean that the nurse must put as much effort into dutifully caring for herself and upholding herself in consistent, moral character, as she does for the efforts she invests in her patients. This is something a nurse should strive for throughout her career. There is always room left for improvement. We know nurses tend to be very dedicated, devoted and selfless people. These are admirable qualities and virtues. They seem as innate for the nurse toward the patient as a mother toward her child. How many nurses do you see direct as many efforts toward themselves and each other as they do for their patients?

Nurses experience a range of emotions in their daily work. These can include everything from feeling challenged, stimulated, overwhelmed, anxious, and frustrated, to feeling competent, confident, and rewarded.

There are many strategies nurses can use when coping with daily stress and strain:

1. Striving to communicate well at all levels.

2. Trying to be as non-threatening as possible in all dealings.
3. Developing a consistent reputation of being approachable.
4. Maintaining a routine of regular exercise and good nutrition.
5. Continuing in faith practices, which provide a steady focus and centering.
6. Taking advantage of the mentors or preceptors provided.
7. Participating in hobbies for recreation.
8. Guarding against compassion fatigue through self awareness.
9. Attaining a certification in one's nursing specialty.
10. Considering further one's education as a life-long learner.

Most of these strategies are clear and self-explanatory, but the professional development and further education strategy actually changes us as human beings. We are better informed and equipped as nurse clinicians, nurse leaders, and nurse educators. These abilities, confidences, and competencies cross over into the other areas of life, as they are all integrated. Becoming a scholar gives a new way to look at life in general. All students in every area of study need to be well-read in a variety of topics, but this is especially true of nurses. Professional development and furthering ones education gives nurses greater credibility. The well-informed nurse can substantiate her opinions and views better by using knowledge, research and experience to create convincing communication.

Self development helps us to grow satisfied with the person we have become. We give back to the community we live in. It is more than just making a salary, it is part of "our calling" to be a nurse. The time we invest in ourselves yields a great return for us in the form of satisfaction and our improved dealings with others. Let us all promise today that we will make a wholehearted, sustained effort to nurture ourselves better to ward off stress in nursing. It's for our own sake and for the sake of our loved ones, our co-workers and our patients.

Definition

This most common type of headache is caused by severe muscle contractions triggered by **stress** or exertion. It affects as many as 90% of adult Americans.

Description

While most American adults get a tension headache from time to time, women and people with more education are slightly more likely to suffer from them. People who are so anxious that they grind their teeth or hunch their shoulders may find that the physical strain in their body can be experienced as **pain** and tension in the muscles of the neck and scalp, producing almost constant pain.

Causes and symptoms

Tension headaches are caused by tightening in the muscles of the face, neck, and scalp because of stress or poor posture. They can last for days or weeks and can cause pain of varying intensity. The tightening muscles cause more expansion and constriction of **blood vessels**, which can make head pain worse. Eyestrain caused by dealing with a large amount of paperwork or reading can cause a tension headache as well.

Many people report the pain of a tension headache as a kind of steady ache (as opposed to a throb) that forms a tight band around the forehead, affecting both sides of the head. Tension headaches usually occur in the front of the head, although they also may appear at the top or the back of the **skull**.

Tension headaches often begin in late afternoon and can last for several hours; they can occur every day and last throughout most of the day. When this happens, the headache is called a chronic tension headache. Unlike migraines, tension headaches do not cause nausea and vomiting, and sufferers do not exhibit sensitivity to light or signs of any kind of aura before the headache begins.

Diagnosis

Diagnosis of tension headaches is made from a medical history, discussion of symptoms, and elimination of other types of headaches or underlying disorders.

Very few headaches are the sign of a serious underlying medical problem. However, sufferers should call a physician at once if they:

- Have more than three headaches a week.
- Take medication for pain almost every day.
- Need more than the recommended dose of pain medication.
- Have a stiff neck and/or **fever** in addition to a headache.
- Are dizzy, unsteady, or have slurred speech, weakness, or numbness.
- Have confusion or drowsiness with the headache.
- Have headaches that began with a head injury.
- Have headaches triggered by bending, coughing, or exertion.
- Have headaches that keep getting worse.
- Have severe vomiting with a headache.
- Have the first headache after age 50.
- Awaken with headache that gets better as the day goes on.

Treatment

There are many different treatments for tension headaches, which respond well to both medication and massage. If these headaches become chronic, however, they are best treated by identifying the source of tension and stress and reducing or eliminating it.

Medication

Tension headaches usually respond very well to over-the-counter medicines such as aspirin, ibuprofen, or acetaminophen. However, some of these drugs (especially those

that contain **caffeine**) may trigger rebound headaches if their use is discontinued after they are taken for more than a few days.
More severe tension headaches may require combination medications, including a mild sedative such as butalbital. These should be used sparingly, though. Chronic tension headaches may respond to low-dose amitriptyline taken at night.

Massage

Massaging the tense muscle groups may help ease pain. Instead of directly massaging the temple, persons will get more relief from rubbing the neck and shoulders, because tension headaches often arise from tension in this area. In fact, relaxing the muscles of the neck can cut the intensity and duration of tension headaches at least in half.

To relax these muscles, the neck should be rotated from side to side as the shoulders shrug. Some people find that imagining a sense of warmth or heaviness in the neck muscles can help. Taking three very deep breaths at the first hint of tension can help prevent a headache.

Other therapy

If tension headaches are a symptom of either depression or **anxiety**, the underlying problem should be treated with counseling, medication, or a combination of both.

Alternative treatment

Eliminating the sources of the tension as much as possible will help prevent tension headaches. Acupuncture or **acupressure** may be helpful in treating some chronic tension headaches. Homeopathic remedies and botanical medicine can also help relieve tension headaches. Valerian (*Valeriana officinalis*), skullcap (*Scutellaria lateriflora*), and passionflower (*Passiflora incarnata*) are three herbal remedies that may be helpful. A tension headache can also be relieved by soaking the feet in hot water while an ice cold towel is wrapped around the neck.

Prognosis

Reducing stress and relying less on caffeine-containing medications can reduce the number of tension headaches for most people. Also, reducing the intake of products such as coffee, tea, and soft drinks that contain caffeine often reduces headaches.

Health care team roles

Many headaches are identified and treated at home using over-the-counter products. Physicians become involved in diagnosing and treating the underlying causes of tension headaches. Therapists and psychiatrists are involved in processing underlying stress.

Prevention

Tension headaches can often be prevented by managing everyday stress and making some important lifestyle changes. Those who are prone to tension headaches should:

- Take frequent "stress breaks."
- Get regular **exercise**. Even a brisk 15-minute walk can help prevent tension headaches.

- Get enough sleep.
- Release angry feelings.

KEY TERMS

Acupressuren ancient Chinese method of relieving pain or treating illness by applying pressure to specific areas of the body.
Acupuncturen ancient Chinese method of relieving pain or treating illness by piercing specific areas of the body with fine needles.

Relations between Physicians and Nurses

Introduction

Relations between physicians and nurses are sometimes strained. Physician-nurse conflict, tension, and stress have been thought to be contributing factors in job dissatisfaction and burnout for nurses.

Controversy arises about the reasons for physician-nurse conflict, possible solutions to this problem, and the proper relationship between physicians and nurses.

Possible Instances of Conflict

Conflict and tension do not characterize all physician-nurse relations. In many healthcare contexts physicians and nurses communicate and work together to serve their patients.

Conflict can occur between workers in business and professional contexts outside of healthcare, of course. Workers may not get along because of personality differences of various sorts. Workers may perceive they are being treated unfairly relative to coworkers. The organization may create a situation of competition among workers. Sexual harassment can occur. Situations such as these may conflict and tension between coworkers or between supervisor and coworker. Ideally, management should be made aware of such problems and take steps to address and resolve them.

Here we are not concerned with conflict between physicians and nurses that is the result of common business and personality factors such as the above but with conflict that is particular to physician-nurse relations. What distinctive kinds of conflict are possible when physicians and nurses work together and what are the causes of such conflict?

One can consider relations between physicians and nurses from the perspective of physicians or from the viewpoint of nurses. Some research seems to show that physicians perceive less of a problem than nurses do. In other words, nurses seem to think there is more of the problem than do physicians.

There may be a conflict about physician orders. For example, a nurse could disagree with a physician about the appropriateness of orders the physician has given for testing or medication for a patient, or think the physician should give orders for pain medication the physician has refrained from providing. The nurse could feel he or she knows the patient better than the physician does or have ethical qualms about the proposed action. Nurses can get frustrated if they feel their concerns, questions, and opinions about patient care or other processes are being ignored.

Nurses often have to call physicians to ask for clarification or instruction in how to proceed with a particular patient, and physicians are not always receptive to such calls. Physicians are sometimes impatient when the nurse does not have all the available information about the patient at hand that the physician needs to make a decision.

Other situations can arise in which physicians are verbally (or even physically) abusive toward nurses, shouting at them or publicly correcting them with denigrating language. A physician might be frustrated with a new nurse who does not know how to perform a task efficiently, or with a nurse who has not administered a medication to a patient as quickly as the physician desired. Physician workload and time pressures can make them impatient with nurses who they perceive as taking too much of their time.

Possible Causes of Conflict

As mentioned above, interpersonal conflict occurs in many areas of business and personal relationships and sometimes it is due to the particular personalities of the parties involved. Some people are simply less friendly, more impatient, have greater expectations, etc. than others. This can occur in relations among physicians, among nurses, and between physicians and nurses.

Reports of physician-nurse conflict appear more widespread than could easily be attributed to just the typical personality clashes one finds in the workplace and society in general. Several possible sources of conflict between physicians and nurses that have been repeatedly suggested are (1) the power imbalance between physicians and nurses, (2) differing goals of medicine and nursing, and (3) gender conflict between physicians, who have traditionally been men, and nurses, who have been overwhelmingly women.

Power Imbalance

The power imbalance between physicians and nurses in modern healthcare in the United States is well known. This power imbalance occurs both outside and inside healthcare.

In American society, physicians commonly experience significant prestige, respect, and financial success, and in healthcare they enjoy great authority. Their education is among the highest of any profession, consisting of college, medical or osteopathic school, years of residency training, and possibly additional fellowship training. In contrast, nursing, though a highly-respected career, does not enjoy as much societal respect or financial compensation. Clinical nurse specialists and nurse practitioners may have a graduate degree, but many nurses do not even have a bachelor's degree. Their educational level and status in general is much less than that of physicians. Their authority in healthcare contexts is also typically less than that of physicians. The physician bears primary legal responsibility for the patient. It is the physician who makes the key decisions about patient medical diagnosis and treatment and issues orders that nurses are expected to follow. Physicians, who in hospitals are not the direct supervisors of nurses, nevertheless wind up often telling nurses what to do. In small private medical practices employing a nurse the nurse is often hired and employed by the physician.

Hospitals are sometimes run with a dual management/authority structure consisting of a business or administrative hierarchy and a physician hierarchy. The physician hierarchy enjoys significant power over crucial decisions concerning the current and future direction of the hospital. The hospital nursing hierarchy usually enjoys no comparable authority.

Consequently, both inside and outside healthcare contexts, nurses have typically seen their role as subservient to that of the physician. This power imbalance in the workplace and the education and socio-economic difference between physicians and nurses create the perception among nurses that their opinion in the healthcare context is not as valued as well as that of the physicians, creates situations in which their views are overridden or overruled by physicians, and results in tension and frustration on the part of nurses.

Differing Goals of Medicine and Nursing

An outdated image of nurses sees them as merely doctor's helpers, but nursing theorists claim this is a misconception of the proper role of nursing. One way to characterize the difference between medicine and nursing sees physicians as focused on treating the disease and curing the patient, while nursing focuses on caring for the patient as a person. (Obviously, though, physicians are concerned that their patients receive proper care and nurses are concerned that disease be eradicated.)

The differing goals of the physician and nurse for the patient are sometimes thought to be a source of conflict. The nurse may believe he or she is more focused on the patient's state of wellbeing and therefore should have a larger say in their care. A specialist physician or hospitalist treating a patient in a hospital often sees the patient less than the nurse assigned to care for that patient; consequently the nurse may feel he or she knows the patient's care needs and what the patient can tolerate better than does the physician. The nurse may feel that he or she deserves more responsibility and authority for the patient than is allowed by the current system, with resulting nurse frustration, resentment, tension, and stress.

Gender Conflict

Years ago, virtually all physicians in the U.S. were men and all nurses were women. Though today there are male nurses, the large majority of nurses are still women. The majority of physicians overall are still men, though women make up a great percentage of recently graduated physicians and current medical school students.

Some believe the conflict between physicians and nurses to be partly or largely attributable to conflict between the roles of men and women in society. Many ethicists and political thinkers claim historical oppression of women in jobs, wealth, and power in society, though some progress eliminating such disparities seems to have been made in recent years. The physician in the hospital, so the theory goes, sees the nurse as subservient because traditionally the nurse has been female and females have been subservient in society.

All of the above factors deserve consideration as causes of conflict between physicians and nurses. Such factors and the resulting tension and stress can lead nurses to feel denigrated, disvalued, disrespected, intimidated, and disempowered. Nurses who feel intimidated or have low self-esteem might be less inclined to point out errors they perceive a physician to be making. The perception of denigration and disempowerment can lead to nurse job dissatisfaction and nurses leaving the profession, and ultimately poorer patient care.

Resolving Physician-Nurse Conflict

Though many suggestions have been made, the solution to physician-nurse conflict and resulting problems is not fully clear.

One common recommendation is to improve communication between physicians and nurses. Poor communication can result in unmet expectations and resulting frustration and poor working relationships. But while better communication would help, it alone would not seem to solve problems engendered by massive power imbalances or sexism, for instance. And specific recommendations about how to improve communication are needed.

Another suggestion often made is that there be available an optimal method of conflict resolution. Nurses sometimes avoid conflict or are resigned to it, whereas some form of conflict resolution fostering collaboration and cooperation might help alleviate physician-nurse tensions and achieve better overall outcomes. This is a good suggestion, but it is not clear that it is realistic to expect physicians to participate in any such method of conflict resolution if they are satisfied with the status quo or perceive the problem to be something nurses just have to work out for themselves.

Sometimes the suggestion is made that nurses should strive for more independence, power, and authority. Many nurses are already doing that. Needed are ideas on how nurses can attain greater power if physicians do not wish to relinquish it.

In recent years healthcare has emphasized the importance of the role of the multidisciplinary team. A common idea is that the physician should see his or her place as a member of the team and in that context the contributions of others are to be valued. It should be noted, though, that the physician is likely to see his or her role as being that of team leader or director, and so nurses may still feel their contribution is dictated or marginalized.

An important point to note is that conflict between physicians and nurses is likely to hurt the optimal functioning of the team and result in poorer patient care and lower quality healthcare, so senior management in a healthcare organization should take whatever steps are necessary to ensure the organizational culture and management support create an environment in which such destructive conflict is minimized and nurses feel more empowered.

LeTourneau has provided several useful recommendations about possible organizational responses to physician-nurse conflict. In a hospital setting, the head physician executive (such as the medical director) and head nursing executive (such as the director of nursing) should build a relationship of collaboration and mutual respect that can act as a model for others. They should learn each other's disciplines and contributions. They should also develop an organizational vision of how physicians and nurses should interact. This vision should include expectations of their own and other's behavior – physicians stating their expectations for nurses and nurses stating their expectations for physicians. The vision and expectations should then be translated into standards of behavior and concrete policies to correct misbehavior (violations of the standards). Inappropriate behavior will not change unless it results in consequences for the perpetrator.

LeTourneau notes that physician and nursing heads need the support of hospital management in this endeavor. Furthermore, they should examine hospital systems and policies to ensure they are not interfering with the development of better relations; for example, if nurses have to police the physicians' compliance with medical record policies, collaboration will be difficult. Also, opportunities for collaboration should be pursued – physicians providing continuing education to nurses, nurse serving on credentialing committees, etc. -- where they can develop respect and good working relations.

The Importance of an Organizational Response

The problem of physician-nurse conflict needs to be addressed not just by individual clinicians but by a healthcare organization's executive leaders. Hospital administrators and managers may prefer to avoid dealing with the problem. Rather than trying to sweep the problem under the rug, senior management should work to develop an organizational culture in which inappropriate attitudes and behavior of physicians toward nurses and vice versa are not tolerated.

The 10 best ever anxiety management techniques

These techniques fall into three typical clusters:

- the physical arousal that constitutes the terror of panic
- the 'wired' feelings of tension that correlated with being 'stressed out'
- the mental anguish of rumination – a brain that wont stop thinking distressing thoughts

Cluster One: Physical Arousal

Distressing Physical Arousal – sympathetic arousal causes the heart thumping, pulse-racing, dizzy, tingly, shortness of breath physical symptoms, that can come out of the blue and are intolerable when not understood. Even high levels of anxiety can cause physical tension in the jaw, neck and back as well as an emotional somatic feeling of doom or dread in the pit of the stomach, which will set off a mental search for what might be causing it.

Method 1: Manage the body.

- Eat right
- Avoid alcohol, nicotine, sugar and caffeine
- Exercise
- On going self care
- Sleep
- Consider hormonal changes

Method 2: Breathe

Breathing will slow down or stop the stress response

Do the conscious, deep breathing for about 1 minute at a time, 10-15 times per day every time you are waiting for something eg., the phone to ring, an appointment, the kettle to boil, waiting in a line etc.

Method 3: Mindful Awareness

Close your eyes and breathe; noticing the body, how the intake of air feels, how the heart beats, what sensations you can feel in the gut etc

- With eyes still closed, purposefully shift your awareness away from your body to everything you can hear or smell or feel through your skin
- Shift awareness back and forth from your body to what's going on around you

You will learn in a physical way that you can control what aspects of the world – internal or external –you'll notice, giving you an internal locus of control and learning that when you can ignore physical sensations, you can stop making the catastrophic interpretations that bring on panic or worry. It allows you to feel more in control and mindful of the present.

Cluster Two: Tension, Stress and Dread

Many people with anxiety search frantically for the reasons behind their symptoms in the hope that they can 'solve' whatever problem it is, But since much of their heightened tension isn't about a real problem, they are wasting their time running around an inner maze of perpetual worry. Even if the tension stems from psychological or other causes, there are ways to eliminate the symptoms of worry.

These methods are most helpful for diminishing chronic tension.

Method 4: Don't listen when worry calls your name

This feeling of dread and tension comprises a state of low grade fear, which can also cause other physical symptoms, like headache, temporomandibular joint pain and ulcers. The feeling of dread is just the emotional manifestation of physical tension.

You must first learn that worry is a habit with a neurobiological underpinning. Then apply relaxation to counteract the tension that is building up.

This 'Don't Listen' method decreases the tension by combining a decision to ignore the voice of worry with a cue for the relaxation state.

To stop listening to the command to worry, you can say to yourself: "Its just my anxious brain firing wrong". This is the cue to begin relaxation breathing which will stop the physical sensations of dread that trigger the radar.

Method 5: Knowing, Not Showing, Anger

When you fear anger because of past experience, the very feeling of anger, even though it remains unconscious, can produce anxiety To know you're angry doesn't require you to show you're angry.

A simple technique: Next time you feel stricken with anxiety, you should sit down and write as many answers as possible to this question, "If I were angry, what might I be angry about?" Restrict answers to single words or brief phrases.

This may open the door to get some insight into the connection between your anger and your anxiety.

Method 6: Have a Little Fun

Laughing is a great way to increase good feelings and discharge tension. Getting in touch with fun and play isn't easy for the serious, tense worrier.

A therapy goal could be simply to relearn what you had fun doing in the past and prescribe yourself some fun.

Cluster Three: The Mental Anguish of Rumination

These methods deal with the difficult problem of a brain that won't stop thinking about distressing thoughts or where worry suffocates your mental and emotional life. These worries hum along in the background, generating tension or sick feelings, destroying concentration and diminishing the capacity to pay attention to the good things in life.

Therapy does not need to focus on any specific worry, but rather on the act of worrying itself – the following methods are the most effective in eliminating rumination.

Method 7: Turning it Off

If a ruminating brain is like an engine stuck in gear and overheating, then slowing or stopping it gives it a chance to cool off. The goal of 'turning it off' is to give the ruminative mind a chance to rest and calm down.

Sit quietly with eyes closed and focus on an image of an open container ready to receive every issue on your mind. See and name each issue or worry and imagine putting it into the container. When no more issues come to mind, 'put a lid' on the container and place it on a shelf or in some other out of the way place until you need to go back to get something from it. Once you have the container on the shelf, you invite into the space that is left in your mind whatever is the most important current thought or feeling.

At night, right before sleep, invite a peaceful thought to focus on while drifting off.

Method 8: Persistent Interruption of Rumination

Ruminative worry has a life of its own, consistently interfering with every other thought in your mind. The key to changing this pattern is to be persistent with your attempts to use thought stopping and thought replacement. Its important to attempt to interrupt the pattern every time you catch yourself ruminating – you've spent a long time establishing this pattern and it will take persistence to wear it down.

Thought stopping – use the command "Stop" and/or a visual image to remind yourself that you are going into an old habit. The command serves as a punishment and a distractor.

Thought replacement – substitute a reassuring, assertive or self-accepting statement after you have managed to stop the thought. You may need to develop a set of these statements that you can look at or recall from memory.

Method 9: Worry Well, but Only Once

Some worries just have to be faced head-on, and worrying about them the right way can help eliminate secondary, unnecessary worrying. When you feel that your worries are out of control try this next method:

1. Worry through all the issues within a time limit of 10-20 mins and cover all the bases
2. Do anything that must be done at the present timeSet a time when it'll be necessary to think about the worry again
3. Write that time on a calendar
4. Whenever the thought pops up again say, "Stop! I already worried" and divert your thoughts as quickly as possible to another activity – you may need to make a list of these possible diversions beforehand.

Method 10: Learn to Plan Instead of Worry

A big difference between planning and worrying is that a good plan doesn't need constant review. An anxious brain, however, will reconsider a plan over and over to be sure it's the right plan. This is all just ruminating worry disguising itself as making a plan and then seeking constant reassurance.

It is important to learn the fundamentals of planning as it can make a big difference in calming a ruminative mind. These include:

1. Concretely identifying the problem
2. Listing the problem solving options
3. Picking one of the options
4. Writing out a plan of action

To be successful in this approach, you must also have learned to apply the thought-stopping/thought-replacing tools or you can turn planning into endless cycles of replanning.

Once a plan has been made you can use the fact that you have the plan as a concrete reassurance to prevent the round-robin of ruminative replanning. The plan becomes part of the thought-stopping statement, "Stop! I have a plan!" It also helps the endless reassurance-seeking, because it provides written solutions even to problems the ruminator considers hopelessly complex.

Conclusion

These skills do require patience and determination. However, once learnt, people gain a lasting sense of their own power and competence in working actively with their own symptoms to conquer anxiety through their own efforts.

Even as I love the autumn season, it is full of anxiety for me.

I start to mourn the ending of summer when I hear the cicadas grow louder the last two weeks of August and when I feel the crispness in the air at that time, which brings less sunlight and longer nights. Then the back-to-school craze: buying shoes, supplies, backpacks, etc. and trying to catch up on the homework we didn't do during June and

July. By the time I make it to the parent-teacher conferences in early September, when I hear about all the things I'm supposed to be doing with the kids, I'm well into panic mode.

Yesterday my therapist and I talked about a few coping exercises to keep my anxiety from disabling me this time of year.

1. Pick a sound or object to be your Xanax.

My therapist looks up to the clouds. They calm her down in traffic or whenever she feels anxious. For me it's the water. I don't now if it's because I'm a Pisces (fish), but the water has always calmed me down in the same way as Xanax, and since I don't take the latter (as a recovering alcoholic, I try to stay away from sedatives), I need to rely on the former. So I just downloaded some "ocean waves" that I can listen to on my iPod when I feel that familiar knot in my stomach.

2. Repeat: "I am good enough."

My therapist reminded me this morning that even if I don't meet other people's standards or my own, I am good enough for myself. And that's all that really matters. So whenever I feel the pinch of anxiety when I don't have time to call back a friend or send a response to an email or write the blog post that I said I'd write, I should remind myself that I am good enough for me.

3. Take it one minute at a time.

One cognitive adjustment that helps relieve anxiety is reminding myself that I don't have to think about 2:45 pm when I pick up the kids from school and how I will be able to cope with the noise and chaos when I'm feeling this way, or about the boundary issue I have with a friend–whether or not I'm strong enough to continue putting myself first in that relationship. All I have to worry about is the very second before me. If I am successful at breaking my time down that way, I usually discover that everything is fine for the moment.

4. Pay attention to your breath.

Another easy exercise to ground yourself in the moment and manage anxiety is to concentrate on your breath–and move it ever so gradually from your chest to your diaphragm–because the extra oxygen will send a message to your prefrontal cortex that every thing is just fine even though the fear center of the brain (the amygdala) doesn't think so at all.

5. Learn from it.

Anxiety doesn't have to be triggered by an event, but it certainly can motion some adjustment that you need to make in your life. My anxiety says that I am doing too much, once again. Over the summer I forgot about my fragile chemistry and attempted to work full time and take care of the kids full time until, in August, I was going on fumes. What adjustments do I need to make? Bite off less professionally and invest more energy into finding good help for the kids and housework. Because I can't do it all.

What about you? What techniques do you use when you feel anxious?

Exercise for Stress and Anxiety

The physical benefits of exercise — improving physical condition and fighting disease — have long been established, and physicians always encourage staying physically active.

Exercise is also considered vital for maintaining mental fitness, and it can reduce stress. Studies show that it is very effective at reducing fatigue, improving alertness and concentration, and at enhancing overall cognitive function. This can be especially helpful when stress has depleted your energy or ability to concentrate.

When stress affects the brain, with its many nerve connections, the rest of the body feels the impact as well. Or, if your body feels better, so does your mind. Exercise and other physical activity produce endorphins — chemicals in the brain that act as natural painkillers — and also improve the ability to sleep, which in turn reduces stress.

Scientists have found that regular participation in aerobic exercise has been shown to decrease overall levels of tension, elevate and stabilize mood, improve sleep, and improve self-esteem. About five minutes of aerobic exercise can begin to stimulate anti-anxiety effects.

Relationship of Exercise to Anxiety Disorders

Stress and anxiety are a normal part of life, but anxiety disorders, which affect 40 million adults, are the most common psychiatric illnesses in the U.S. The benefits of exercise may well extend beyond stress relief to improving anxiety and related disorders.

Psychologists studying how exercise relieves anxiety and depression suggest that a 10-minute walk may be just as good as a 45-minute workout. Some studies show that exercise can work quickly to elevate depressed mood in many people. Although the effects may be temporary, they demonstrate that a brisk walk or other simple activity can deliver several hours of relief, similar to taking an aspirin for a headache.

Science has also provided some evidence that physically active people have lower rates of anxiety and depression than sedentary people. Exercise may improve mental health by helping the brain cope better with stress. In one study, researchers found that those who got regular vigorous exercise were 25 percent less likely to develop depression or an anxiety disorder over the next five years.

Exercise as Part of Therapy

According to some studies, regular exercise works as well as medication for some people to reduce symptoms of anxiety and depression, and the effects can be long lasting. One vigorous exercise session can help alleviate symptoms for hours, and a regular schedule may significantly reduce them over time.

Although exercise has a positive effect for most people, some recent studies show that for some, exercise may not have a positive effect on anxiety or depression or may not make a strong impact on long-term mental health.

Like all forms of therapy, the effect can vary: Some people may respond positively, others may find it doesn’t improve their mood much, and some may experience only a modest short-term benefit. Nonetheless, researchers say that the beneficial effects of exercise on physical health are not in dispute, and people should be encouraged to stay physically active.

Fitness Tips: Stay Healthy, Manage Stress

The most recent federal guidelines for adults recommend at least 2½ hours of moderate-intensity physical activity (e.g. brisk walking) each week, 1¼ hours of a vigorous-intensity activity (such as jogging or swimming laps), or a combination of the two.

If you have an exercise program already, keep up the good work. If not, here are tips to get you started.

- 5 X 30: Jog, walk, bike, or dance three to five times a week for 30 minutes.
- Set small daily goals and aim for daily consistency rather than perfect workouts. It's better to walk every day for 15-20 minutes than to wait until the weekend for a three-hour fitness marathon. Lots of scientific data suggests that frequency is most important.
- Find forms of exercise that are fun or enjoyable. Extroverted people often like classes and group activities. People who are more introverted often prefer solo pursuits.
- Distract yourself with an iPod or other portable media player to download audiobooks, podcasts, or music. Many people find it’s more fun to exercise while listening to something they enjoy.
- Recruit an “exercise buddy.” It's often easier to stick to your exercise routine when you have to stay committed to a friend, partner, or colleague.
- Be patient when you start a new exercise program. Most sedentary people require about four to eight weeks to feel coordinated and sufficiently in shape so that exercise feels easier.

Cold Weather Exercise

Learn more about exercising in cold weather.

- Dress in layers. Exercise in layers that you can remove as you start to sweat and put back on as needed.
- Protect your hands, feet, and ears. Make sure your extremities aren warm and wear gloves, socks, and headbands to prevent frostbite.
- Pay attention to weather conditions and wind chill. Rain and wind can make you even more vulnerable to the effects of the cold. If the temperature is below zero degrees and the wind chill is extreme, consider taking a break or finding an indoor activity.
- Choose appropriate gear. It gets dark earlier in the winter, so be sure to wear reflective clothing. Wear shoes with enough traction to prevent falls in snow or ice.
- Remember sunscreen. It's just as easy to get burned in the winter as in summer, so don't forget the SPF.
- Head into the wind. Plan your route so the wind is at your back toward the end of your workout to prevent getting a chill after working up a sweat.
- Drink plenty of fluids. It can be harder to notice the symptoms of dehydration in cold weather, so drink fluids before, during, and after a workout, even if you're not thirsty.
- Know the signs of frostbite and hypothermia. Know the signs and get help immediately to prevent frostbite and hypothermia.

Stress causing psychosomatic illness among nurses

Abstract

Stress in nurses is an endemic problem. It contributes to health problems in nurses and decreases their efficiency. Documenting the causes and extent of stress in any healthcare unit is essential for successful interventions

Aim:

Establishing the existence and extent of work stress in nurses in a hospital setting, identifying the major sources of stress, and finding the incidence of psychosomatic illness related to stress.

Materials and Methods:

This study used a questionnaire relating to stressors and a list of psychosomatic ailments. One hundred and six nurses responded and they were all included in the study. Stressors were based on four main factors: work related, work interactions, job satisfaction, and home stress. The factors relating to stress were given weights according to the severity. The total score of 50 was divided into mild, moderate, severe, and burnout.

Results:

Most important causes of stress were jobs not finishing in time because of shortage of staff, conflict with patient relatives, overtime, and insufficient pay. Psychosomatic disorders like acidity, back pain, stiffness in neck and shoulders, forgetfulness, anger, and worry significantly increased in nurses having higher stress scores. Increase in age or seniority did not significantly decrease stress.

Conclusion:

Moderate levels of stress are seen in a majority of the nurses. Incidence of psychosomatic illness increases with the level of stress. Healthcare organizations need to urgently take preemptive steps to counter this problem.

Keywords: Burnout, nursing shortage, nursing stress, psychosomatic illness, shift work

INTRODUCTION

Stress affecting nurses across the globe has been convincingly documented in the literature for more than 40 years. Nurses' environment include an enclosed atmosphere, time pressures, excessive noise or undue quiet, sudden swings of from intense to mundane tasks, no second chance, unpleasant sights and sounds, and long standing hours.

Nurses are trained to deal with these factors but chronic stress takes a toll when there are additional stress factors like home stress, conflict at work, inadequate staffing, poor teamwork, inadequate training, and poor supervision. Stress is known to cause emotional exhaustion in nurses and lead to negative feelings toward those in their care.

It is important to identify the extent and sources of stress in a healthcare organization to find stress management strategies to help the individual and the environment. Stress in nurses affects their health and increases absenteeism, attrition rate, injury claims, infection rates, and errors in treating patients.

Unless the healthcare setups acknowledge the problem and take preemptive steps to tackle the growing menace of chronic stress, personnel costs will keep rising and add to the already soaring costs of care. Nurses' absenteeism, turnover, and sickness significantly increase the cost of employment in healthcare units.

MATERIALS AND METHODS

There are very few studies in India on stress in nurses. In1981, Grey-Toft developed an instrument called the "Nurses Stress Scale."[3] This scale described 34 situations that could cause stress for nurses. The present study has modified and translated the questionnaire to Marathi to suit the nurses in these hospitals so that their major causes of stress could be identified. Questions related to sexual harassment, addiction, and substance abuse were omitted as most of the nurses in this study come from lower middle class conservative homes. Both job stress and home-related stress factors were included in the study.

A pilot study was carried out by giving these questionnaires to the nurses-in-charge and four senior nurses.

This questionnaire was given to all 120 nurses who worked in two hospitals managed by a private foundation. One hundred and six of them replied and the data were collected.

Total number of stress factors was 27. They were categorized under: work related (8), interaction at work place (7), job satisfaction (5), and home-related stress (7). Each stress factor was graded as 1, 2, or 3 according to its potential to cause stress. Thus, the total factor score was 27 and the total weighted score was 50. Stress factors and severity of stress were graded [Table 1].

Table 1
Severity of stress

Grading	Factor score	Weighted score
Mild stress	1–6	Less than 13
Moderate stress	6–13	13–25
Severe stress	13–20	26–37
Burnout	More than 20	More than 37

Table 1
Severity of stress

Analysis was carried out in two ways:

1. Average (mean) number of factors and average weight – present by the illness or symptoms.
   In case of means, unpaired *t*-test is used to compare the means of the two groups of illness/symptom present or absent. *P*-value is given. If $p < 0.05$, the difference between the means is significant.
2. Cross tables – categories of stressors and weight by presence/absence of illness or symptoms. In this case; percentage of illness/symptom in a particular category of stressor or weight is given. From the increase or decrease in the percentage, one can infer the significance. χ^2 test is applied to test whether the difference is real or by chance [Tables [Tables22 and and33].

   Table 2
   Modified table of statistically significant parameters derived from t-tests (Stress Scale 27 factors)

Parameter		Average number of factors/stressors	P-value
Acidity	Present	9.0000	0.020
	Absent	7.5208	
Backache	Present	9.0400	0.035
	Absent	7.6964	
Stiffness of the shoulders	Present	9.0870	0.037
	Absent	7.7500	
Memory problem	Present	10.8750	0.001
	Absent	7.8778	
Getting angry	Present	9.4524	0.004
	Absent	7.5938	
[illegible]	Present	9.2407	0.003

   Table 2
   Modified table of statistically significant parameters derived from t-tests (Stress Scale 27 factors)

Table 3

Modified table of statistically significant parameters derived from t-tests (stressors with weight 50 factors)

Parameter		Average stress weight	P-value
Acidity	Present	17.1379	0.031
	Absent	14.5417	
Backache	Present	17.4000	0.023
	Absent	14.6786	
Memory problem	Present	20.6250	0.001
	Absent	15.1333	
Getting angry	Present	18.4286	0.001
	Absent	14.3438	
Worrying	Present	17.8148	0.001

Table 3
Modified table of statistically significant parameters derived from t-tests (stressors with weight 50 factors)

RESULTS

Stress levels were studied in 106 nurses from all units of the hospitals.

Fifty-six percent of the staff has more than 10 years of experience. Age and experience wise, this is a senior workforce [Tables [Tables44 and and5].5]. Workplace stress should decrease with age and experience and development of skills but this fact was not statistically supported.

Table 4

Demographic variables

Age	No.	%	Marital status	No.	%
Less than 25	24	22.6	Married	75	70.8
25–34	42	39.7	Single	23	21.7
35+	40	37.7	Separated/divorced	3	2.8
Sex			Widowed	5	4.7
Women	102	94.8			
Men	4	2.9			
n = 106					

Table 4
Demographic variables

Table 5

Demographic variables

Qualifications	No.	%
B.Sc.	3	2.7
ANM/GNM	22	20.8
Private course	81	76.5
Work experience		
Up to 4years	18	16.9
5–9 years	28	26.4
10–19 years	51	48.2
20+	9	8.5
Employment status		
Permanent	96	90.6
Contract	4	3.8
Temporary	6	5.6
Type of nursing unit		

Table 5
Demographic variables
73.59% of the nurses suffer from significant stress varying in severity [Table 6].

Table 6

Severity of stress in nurses

Stress score	No.	%
Mild (1–13)	28	26.42
Moderate (14–25)	70	66.04
Severe (26–37)	8	7.55
Burnout (> 37)	0	-
n = 106		

Table 6
Severity of stress in nurses

Major causes of stress that were studied are listed in Tables Tables77 and and88.

Table 7

Work stressors affecting nurses

Work related	No.	%
Not finishing work in time	83	78.3
Backache due to standing for long hours	65	61.3
Shortage of staff	62	58.5
Overtime	31	29.2
Dealing with cardiac arrest/emergencies	29	27.4
Problematic patients/death	24	22.6
Handling patient relatives	23	21.7
Night duty	22	20.8
Interactions		
Troublesome relatives	72	67.9
Troublesome patients	60	56.6
Fear of getting infected	30	28.3
[illegible] cooperation between nurses	6	5.7

Table 7
Work stressors affecting nurses

Table 8

Home stressors affecting nurses

Home stress		
Dependant relatives	56	52.8
Work disturbs home life	39	36.8
Home stresses more than work	21	19.8
Sole earning member	20	18.9
Need of crèche	15	14.2
No family support	10	9.4
Husband with a drinking problem	9	8.4

Table 8
Home stressors affecting nurses

The nursing profession is in the middle of the most crippling nursing shortages in its history. By 2020, the workforce will be 20% below requirements. In this study, excessive workload was a major cause of stress and emotional exhaustion.

Back pain due to standing for long hours, lack of exercise, and shifting patients can also decrease efficiency and increase absenteeism. Stiffness in the neck and shoulders seen in the nurses is largely due to continuous tensing of muscles due to stress.

Sixty-six percent of the nurses were interested in training for new skills and 60% desired more training for their present job. Ongoing training and job rotation are yet not an established initiative taken up by HR mangers in hospitals.

Sixty percent of the nurses are not satisfied with their existing salary and benefits.

Fear of exposure to acquired immunodeficiency syndrome (AIDS) and Hepatitis while treating infected patients is a cause of stress, especially in younger nurses who are not trained to protect themselves, taking universal precautions for all patients.

Most of them have a permanent employment status. Therefore, the stress of job insecurity does not affect them.

Home stress contributes significantly to the stress faced by nurses. Their home life is disturbed due to night shifts, overtime, transport delays, and difficulty in getting leave. Worry about children and their studies not being properly supervised are common. Nurses look after the home, cooking, cleaning, etc as they cannot afford domestic help.
The psychosomatic illnesses that were statistically significant in this study are highlighted in Tables Tables9 and and10.

Table 9
Nurses suffering ill health

Physical symptoms	No.	%
Headache	64	60.5
Acidity	58	54.5
Backache	50	47.2
Stiffness in neck and shoulders	46	43.4
Stomach ache	12	11.3
Fainting	9	8.5
Constipation	8	7.5
Blood pressure	4	3.8
Dysmenorrhea	3	2.8
Other gynecological problems	2	1.9
Diabetes	1	0.9
Loose motions	1	0.9
Asthma	1	0.9

Table 9
Nurses suffering ill health

Table 10
Nurses suffering ill health

Emotional symptoms	No.	%
Tiredness	43	40.6
Crying	23	21.7
Forgetfulness	16	15.1
Anger	42	39.6
Worry	54	50.9
Depression	15	14.2
Loneliness	21	19.8

n = 106

Table 10

Nurses suffering ill health

Psychosomatic illness is a disorder that affects the body and the mind. These illnesses have emotional origins causing physical symptoms. Chronic stress is responsible for 90% of these illnesses.

In spite of 60% of the nurses complaining of headache, it was not statistically proved to correlate with increasing level of stress. It could be due to lack of sleep because of the dual responsibility of work and home.

Acidity affects 62% of the nurses. Anemia is seen in 32% of the staff. This may be because of erratic meal times, missing meals because of overwork, and faulty eating and excessive consumption of tea and coffee during the night shift.

From this, study we can infer that acidity, anemia, backache, and stiffness in the neck and shoulders are related to stress at home and workplace. Emotional symptoms of forgetfulness, getting excessively angry, and worrying also significantly affect the nurses in this study.

DISCUSSION

Stress is experienced when demands made on us outweigh our resources. A moderate level of stress or "Eustress" is an important motivating factor and is considered normal and necessary. If stress is intense, continuous, and repeated, it becomes a negative phenomenon or "Distress," which can lead to physical illness and psychological disorders. Psychosomatic illnesses are disorders that involve both the body and the mind. These illnesses are mental or emotional in origin and have physical symptoms. Running hospitals as businesses has changed the working pattern of nursing as a whole. Stress levels are on the rise and little is being done about assessing this malady and actively managing its effects. Nurses are expected to give sensitive quality patient care, have patience, and help disposition and, at the same time, save costs and increase efficiency by keeping a rapid throughput.

Nurses are the backbone of any healthcare unit. The pressures of overtime and long working hours create a work–personal life imbalance, which begins to affect the health of the employees. Other factors such as long commuting hours and chaotic traffic conditions adding to their stress affect the employee's efficiency and effectiveness. It can undermine the employee's relationship at home as well as on the job. This can have a negative influence on their physical and emotional health and lead to psychosomatic disorders. Economic loss to the organization due to errors, wrong decisions, wrong choice, lack of attention, and injury are some of the serious effects of chronic stress.[7]

The trend of nurses working overtime started with downsizing of organizations and the trend to have only skeletal manning. Absenteeism is compensated by others doing overtime. This increases the take-home pay but is likely to injure their health. Such nurses experience severe stress and require more sick leaves. This risk increases with the length of overtime.

All nurses have to do shift work or attend emergencies at night. The stress of shift work can also aggravate health conditions and lead to heart disease or digestive disorders. Fatigue can lead to error, injury, and carelessness. Long hours are a source of depression, low morale, and low motivation. Shift workers are on the job in the evening or on weekends and they sleep during the day. Hence, they often miss out on social or family activities.

There is a stark difference in causes of stress in nurses in developed countries and in India. Nurses in India are poorly remunerated compared to the world standards. For the kind of intense work that the nurses do, the salary and benefits are not adequate. Rewards not proportional to workload is a source of great stress as it is difficult to have decent standards of living based only on their basic salary.

Lack of professional respect and recognition by authorities and doctors is the major cause of dissatisfaction in nurses abroad. Poor relationship with physicians was related to musculoskeletal disorders, which is seen as the most important reason for nurses leaving hospitals. Lack of autonomy, poor participation in patient care due to lack of sufficient knowledge, and empowerment deprives them from job satisfaction.

Nurses in India are mainly from the lower economic strata and have low educational qualifications. Their main motivators are salary and benefits to support their home and maintain a decent standard of living. Shortage of staff makes them easily succumb to increasing their pay package by doing excessive hours of overtime at the expense of their health. They have limited access to claims and compensation for occupational hazards.

Many studies of stress in nurse in developed countries have shown chronic stress as a major contributor to suicide or suicidal thoughts, smoking, excessive coffee consumption, and alcohol intake.[9]

Resurfacing of repetitive problems and feeling of the work never getting done added to stress in this study. Turnover for skilled nurses is instigated by internal, on the job factors, which cause dissatisfaction and stress (poor salary, lack of recognition, workplace bullying) and a desire to leave. Replacement is mostly with less skilled staff, which increases the responsibility and load of the remaining skilled staff. Shortage of staff increases the burden of non-nursing jobs, like shifting patients, picking up food trays, making beds, and even filing and keeping record.

Poor nutrition leading to anemia contributes to the poor health of the nurses in this study. Meals are usually not taken in time. Missing breaks to finish work also increased stress. Shift work can interfere with regular eating and digestive circadian rhythm. This could lead to acidity and other stomach problems. However, digestive problems also could be caused by the tendency for excessive consumption of tea or coffee in the night shift.

In the absence of doctors, nurses are on the front line and have to face verbal abuse from patients and relatives for issues that may not be directly connected to their work. Physical violence and aggressiveness is also on the rise in patients and their relations. Demanding patients and their relatives can cause conflict and lead to more stress. Patients' expectations from nurses are sometimes unreasonable and they tend to be aggressive. No training is given to them to deal with confrontation.

Stress-related illness is not imaginary. It is very tricky to diagnose and treat. The key is to look for a source of stress that the person is not coping with.

Chronic stress decreases motivation. It can lead to increased absenteeism and increased turnover and attrition rates. Thus, it is mandatory for healthcare organizations to address this issue urgently. There is urgent need for proactive stress management, especially preventive strategies, as are encouraged in the industry and IT sector. There is need for coping techniques like team building, counseling, learning assertiveness, and communication skills, which should be taught to all nurses, even incorporated in their training curriculum.
Elimination of all stressors is a utopian goal. Effective solutions can be found, like increasing skills, enriching work, and increasing the participation of nurses in the organization. Adequate staffing, which reduces job stress and overtime, could lead to improved efficiency along with cost effectiveness.

An ounce of prevention is worth a pound of cure:

Every organization should assess the magnitude of stress and analyze it to recognize the need for action. This is also called a "stress audit." Earlier, stress was viewed as a personal problem to be tackled at an individual level with palliative or remedial measures. Now, the approach is to be proactive, with emphasis on prevention and elimination rather than treatment. Improving the quality of work life of nurses may go a long way to decrease attrition.

This study was inspired by the work of Professor Tom Cox, Amanda Griffith, and Professor Sue Cox, who are committed to the vision of a healthy and productive workforce. I hope this study has made a small contribution to the achievement of that vision.

CONCLUSION

Seyle's research was the first to demonstrate a correlation between stress and illness. Stress is a slow and insidious malady, which is affecting the healthcare industry, and there is dearth of research on this important topic in developing countries. Psychosomatic illness in nurses needs to be researched further to make policy decisions that will improve the work-life balance for nurses.

Recognition, participation, and continuous training go a long way in retaining skilled staff and preventing a "skill hole." Organizations must be sensitive to the dual stress of home and work faced by nurses.

Healthy organizations are associated with open management styles and employee empowerment. Organizational climate and values are seen as important, with provision of social support, feedback, and shared rewards as potential strategies for stress reduction.

All hospitals should feel responsible for the well-being of their workforce as it proportionately improves safety standards of their patients. Nurses' positive attitude to their work markedly increases patient satisfaction and patient loyalty. Downsizing as a remedy to cutting costs can adversely affect healthcare delivery and contribute indirectly to the soaring costs of treatment.

THE DIALECTIC TENSION BETWEEN'BEING' AND 'NOT BEING' A GOOD NURSE

Key words: dialectics; focus group; hermeneutics; nursing care intensity; patient classification system; workload

The aim of this hermeneutic study was to gain a broader understanding of nurses' workload and what characterizes a nurse's experience in terms of the various levels of intensity of nursing care. Twenty-nine nurses participated in seven focus groups. The interpretation process took place in six different phases and the three laws of dialectics were used as interpretation rules. An optimal nursing care intensity level can be understood as a situation characterized by the balance between the intensity of care needed by patients and the external and internal factors of the current nursing care situation. The nurses' work situation can be understood as a dialectic struggle between 'being' and 'not being' a good nurse; this can be said to be the underlying root metaphor. Nursing care can be understood as consisting of 'complex and meaningful caring situations'. Dialectics can be used as a fruitful method of revealing the complexity of clinical reality.

Background and purpose

The increasing burnout rates among nurses, their absence due to illness and their decreased job satisfaction gain much media coverage.1 Workplace stress in nursing is mainly caused by workload, leadership/management issues, professional conflicts and the emotional needs of caring.2,3 Adequate nurse staffing and organizational/ managerial support for nursing are the keys to diminishing nurse job dissatisfaction and exhaustion.4 Do the nurse managers realize the nurses' ethical dilemmas in such working conditions?

In caritative caring theory, which Eriksson has been developing over the last 30 years, the fundamental ingredients of ethics are caritas: love and charity.5 Ethical care is made explicit in our approach as nurses and in how we care for patients in practice. 'Ethical caring' is important for many nurses since they want to be 'good nurses' for patients, but they often experience difficulties in realizing their own caring philosophy in practice (ie nurses experience these situations as ethical dilemmas).

Research on nurses' workload is ongoing, but is there enough knowledge about nurses' experience of their jobs regarding different workload levels? What kind ofworking situation would nurses wish for if they could have it? What would be characteristic of an optimal situation, in which staff resources would be in balance with patients' needs for nursing care? In the RAFAELA patient classification system this situation is called 'optimal nursing care intensity level'.9 The aim of the present study was to investigate qualitatively these topical questions, which have so far interested relatively few nursing care researchers.

The concept of 'nursing care intensity' is concerned with nurses' workload and is thought to form a considerable part of nurses' total workload. Nursing care intensity is defined as the amount of care, help and support any patient has received during a period of time (24 hours), that is, the patient's acuity or the severity of the condition.6

In the present study, the expression 'the general nursing care situation with its demands' is synonymous with workload. This paraphrase is considered necessary because of the hermeneutic orientation of the study and the fact that the aim of the study was to gain a new and broader understanding of nurses' workload, as well as the general nursing situation and demands.

The study sought a new and broader understanding of the experience of nurses' working situations expressed in terms of different nursing care intensity levels. The research questions were:

. What characterizes the working situation of an optimal nursing care intensity level, a high nursing care intensity level, and a low nursing care intensity level? The focus here is on what these characteristics imply for nurses.

. What are the factors affecting nurses' experience of the nursing care situation and its demands?

. What is the nurses' underlying message in their descriptions of different working situations from an ethical point of view?

Method

All research is influenced by the researcher's theoretical perspective concerning the ontological questions of reality, scientific opinion and epistemological interest. If the research results can be related to explicit theoretical perspectives of research, this will broaden the understanding of the results and can even be considered to touch on the question concerning the validity of qualitative studies; that is, one can follow the logic of how the results have emerged in the course of the data processing. In this study, the dialectic, both as a method and theory, has influenced the interpretation process.

Dialectics as a theory has influenced the oscillations between different levels in the interpretation process. Aristotle's philosophy was influenced by a dialectic way of thinking. According to Hegel, the philosopher, human thought and history develop dialectically when one form (the thesis) changes into its opposite (antithesis).

These two opposites will eventually merge to form the synthesis.10 The essence of dialectics can be seen as an acknowledgement of the contradictory nature of reality; therefore dialectics can be described as a landscape where dissimilarities can meet. As a method, dialectics strives to explain certain paradoxical and contradictory phenomena in reality or history. According to Helenius, dialectics can be understood as an attitude that attempts to perceive movement and change in its entirety in order to develop an analysis from the abstract to the concrete. Dialectics as a method has been described by Helenius10 and by Moccia,12 and has been used in this study as the laws of dialectics.

Participants and data collection

The study, which from the beginning consisted of two parts, was conducted between November 1999 and February 2000 at a university hospital and a central regional hospital in Finland. The first part was a validity test of an instrument in the RAFAELA system.7 The second part is presented in this article. Focus groups were used as the data collection method. When choosing members for the focus groups, the aim was that they should represent the entire population13 by exemplifying a number of different specialties at the hospitals (surgical, orthopaedic, paediatric, medical, oncological, neurological, ophthalmic, ENT and gynaecological wards) as well as being representative of the wards in question. Important criteria for selection were the participants' work experience and type of position, such as permanent employment, continuing contract of employment or temporary post for at least one year.

A total of 13 nurses participated from the university hospital (nine registered nurses, three assistant nurses and one paediatric nurse), who were divided into three focus groups. The work experience in each ward varied from 1 to 31 years (mean 13.2). From the central hospital a total of 16 nurses participated (11 registered nurses, one midwife and four assistant nurses) and these were divided into four focus groups. The work experience of these groups varied from 1 to 30 years (mean 9.9).

The theme questions for the focus groups concentrated on the nurses' experience of different levels of nursing care intensity (optimal, high and low), the characteristics of these levels, and their experiences of the meaningfulness and lack of meaning in nursing care and factors affecting their workload. The focus group discussions (seven in total) took approximately one hour each and were held by two group leaders. The discussions were audiotaped and transcribed verbatim. The aim was to create an open atmosphere and stimulate the group to exchange experiences and views concerning the topical theme areas. The ethical responsibility of the group leaders was to ensure that they did not affect the dynamics and the dialogue between the group members.

The guidelines for nursing research in the Nordic countries issued by the Northern Nurses Federation15 formed the broad outlines for the planning and implementation ofthis study. Permission for the study was given by the directors of nurses/leading groups of the units from both hospitals. As only staff members were involved, no other permission was necessary. Participation was voluntary and the participants were assured of anonymity.

The data analysis phase as an interpretation process

A hermeneutic interpretation process can be pictured as a spiral movement characterized by dialectic oscillations between the parts and the whole, between explaining and understanding, between the concrete and the abstract, between the inner reality and the external context.16 The hermeneutic approach can be characterized as an interplay between different levels of analysis and abstraction, between the past and the future, and a focusing on both external reality and the existential world.

The importance of contextual understanding is central to hermeneutics, which means that the endeavour is to consider the topical phenomenon in its context, since people are to be understood as part of history, culture and tradition.17,18 According to Alvesson and Sko¨ldberg,19 the interpretation process can reach a deeper structure in the material and through this the researcher can find the underlying message in the data, the so called 'root metaphor'.

The dialectic attitude permeates the whole research design, especially in the final stage of the process of interpretation. The three laws of dialectics were used in this research as rules of interpretation.

The process of interpretation can be described as comprising the following phases, beginning with the more descriptive and ending with the more interpretive:

1) A description of the meaning content and substance of the nurses' accounts of the three different levels of nursing care intensity (optimal, high and low).
2) A description of the nursing care situation and its demands.
3) In accordance with the first law of dialectics, the law of the unity of opposites, interpretations were made of elements of the data that were superficially opposites of each other. Could the opposite poles be combined with each other?
4) The process of interpretation advanced with the aid of the second law of dialectics (ie closer analysis of the relationship between concepts). Changes in the number of internal relationships implied qualitative changes in understanding topical research questions.
5) A remodelling of the tension between thesis and antithesis moved to synthesis, in accordance with the third law of dialectics.
6) Finally, an interpretation was made of the root metaphor of the material for the interpreted whole. What was the underlying message and meaning of the material?

Findings

Descriptions of optimal, high and low nursing care intensitylevels

The most characteristic feature of an optimal nursing care intensity level is nurses' feeling of being able to respond to patients' caring needs because the necessary time for nursing care is available. The nurses are able to care in 'peace and quiet' and there is 'time to sit down and listen' to the patients' anxieties and worries. The nurses feel that they master the situation and have it well in hand. The patients experience a safe world, characterized by care and attention: 'patients dare to demand and ask, feel that we have the time . . . patients should have the feeling that they get what they want, that they are cared for'. Both nurses and patients are satisfied with the situation, as there is also 'time for spiritual care and not only for performing a lot of nursing tasks'.

The characteristic of a high nursing care intensity level is that the workload is too high and the nurses feel they cannot provide the nursing care the patients require. 'You are in a hurry and you do what is absolutely necessary for the patient, you do what you have to do, but you leave everything else and the patient notices that you are in a hurry.' 'What is absolutely necessary' is defined as nursing care duties connected with the care and treatment of patients, such as administering medicines, attending to important vital functions and dealing with the most central needs of the patients, such as nutrition and hygiene. Focusing on physical needs combined with insufficient time for conversation is felt to be an obvious shortcoming in nursing care. The planning and documentation of nursing care, as well as the process of informing patients and their families, become insufficient.

The work situation of nurses is characterized by a feeling of chaos, that their own capacity is not sufficient and that the situation is not under control, either during or after the shift. Nurses also expressed an obvious fear when going to work and even a fear of forgetting something important, since the stressful work situation caused constant interruptions in their performance of assignments. 'Running back and forth' was interpreted as a risk that the quality of nursing care was declining. Nurses expressed that there is 'a risk of the burnout phenomenon', a feeling that the significance of nursing care disappears, and also 'a great risk of making fatal errors in the care of patients'. In such an environment, the co-operation between nurses may deteriorate and there is no time for coping with difficult experiences and feelings.

The nurses described a low nursing care intensity level as a working situation when they can 'do all that is possible for the patient'. There is time for talking with and listening to the patients, and the nurses can spend a lot of time with them.

These situations were fairly rare and those of the opposite kind occurred more frequently. One nurse expressed the opinion that they felt bad if the ward was too quiet or feared that the ward may be closed down. Nurses experience situations of low nursing care intensity 'as breathing spaces' and 'pauses for recovery'. The working team has time to discuss and cope with difficult experiences and feelings. The nurses recharge 'their reserves of energy' and have additional energy left over for housework and leisure pursuits. There is time to look after the running of the ward (eg to replenish stocks and stores, order medicines and perform project and development tasks).

Nurses' experiences of the nursing care situation and its demands

The contextual factors and their influence on the nursing care intensity level as a whole, and how nurses experience nursing care situations, is best summed up as 'changes in the activity as a whole'. This is described as situations when the ward is crammed full and when several seriously ill patients are to be cared for simultaneously.

The nurses called these 'chaotic situations', when nursing care is experienced as being disharmonious. One nurse explained: 'I fight all the time with patient calls . . . it's like a beehive, everything goes too fast, I don't have time to think properly about what I'm doing, the tasks are constantly pressing on me'. The nurses expressed a fear of going to work: 'You have such a heavy workload ahead of you, sometimes you are really scared, you can't cope with everything and mistakes might happen . . .' This describes nurses' lack of comprehensive control of the situation and an overall conception of how the patients fare. If the situation is judged as optimal, the nurses manage to keep the changes under control and they have an overview of the situation as a whole.

Other factors in the context are the relationships with colleagues, which can be improved during a period with a low level of nursing care intensity, but deteriorate when it is high. The nurses' possibility of maintaining good relations with the patients' families varies also, depending on the level of nursing care intensity. Co-operation with the doctors influences the way in which activities run. The running of the ward becomes impaired when the level of nursing care intensity is high; thus it was stated several times that medicines had not been ordered in time. The atmosphere on the ward is influenced by the working situation. Other factors that are referred to as central are cover for sick staff, the number of students that have to be looked after, and the way in which co-operation within the organization is managed (ie between service units, and the planning of the work schedule).

Interpretation of the unity of opposites

According to the law of the unity of opposites, the qualities that superficially seem to be each other's opposites are actually combined in internal relationships;10,12 that is, the relationship is actually both/and, not either/or. Can we, on the basis of the described states of optimal, low and high nursing care intensity levels maintain that neither a low nor a high nursing care intensity level is desirable? Judging by the experiences of the nurses in this study, the answer is in the affirmative.

To the nurses, a low nursing care intensity level did not appear desirable in the long run, only as a 'breathing space' in the activity. None of the nurses who took part in the study mentioned that situations or working days with a high nursing care intensity level should never occur; on the contrary, it was assumed that these will inevitably happen in a context that can be characterized by 'a struggle between life and death'.

Judging by the descriptions nurses gave of optimal nursing care intensity, the optimal situation would seem to contain traits of both low and high nursing care intensity. An optimal nursing care intensity level seems to be a combination of 'time for the individual patient and time for carrying out the nursing care at a leisurely pace', and that a number of duties that help the smooth running of the ward still have to be done.

Characteristics of these two polarities can be combined to form an optimal nursing care intensity level that the nurses recognize as meaningful.

Changes in the quantities of the relationships are reflected as qualitative changes in a new understanding

According to the second dialectic law, a change from quantity to quality occurs; that is, changes in the number of internal relationships also imply qualitative changes.

Since the number of relationships between factors has increased in the study, the understanding of the investigated domain has subsequently broadened and the diversity of the research field has become increasingly easier to comprehend. When applied to the present study, the understanding of an optimal nursing care intensity level was broadened because both low and high nursing care intensity levels have been studied and a number of other factors and their effects have appeared and been illustrated.

A clinical situation is by nature multidimensional and very complex. In addition to the external factors of the context, which nurses may experience as external demands, they also relate their inner demands: their own personal aims in nursing and the incentives from theoretical knowledge that, in themselves, contain the demand for high quality professional care. The patients' right to good nursing care and to having their needs satisfied is an obvious inner demand for nurses, which they experience as an ethical sine qua non.

The synthesis as a result of the remodelling between thesis and antithesis

The third dialectic law (ie the law of the unity and struggle of opposites) describes a state of tension between thesis and antithesis, which is released and changes into a new state of tension at a higher level.10,12 When a change occurs in one component, it can lead to a change in the opposite component. A remodelling, or transformation, occurs. This means that a development takes place. In this way a new synthesis arises, which in itself contains a new state of tension.6 The basic idea is that what is contradicted is not destroyed, but transformed.

When this model of interpretation is applied in this study to the state of tension between low and high nursing care intensity levels, the optimal intensity level can be understood as a synthesis of the opposite poles. This synthesis can be described as 'a situation characterized by balance and harmony' and the situation is under control.

In these circumstances, nurses can put into effect whatever they want; that is, their will and power of action can be combined to form a whole. This is due to the nurses' ability to prioritize. In the interviews, this ability stands out as important for how well nurses manage to create 'meaningful caring situations' in their work. The necessity for creativity in nursing care is emphasized. In this state nurses can creatively and freely plan the care needed and are not hampered by stereotyped principles, for instance that all patients must have a shower before a certain time. The time aspect nevertheless remains central (ie so that there are realistic possibilities to provide good nursing care).

This study has illustrated the complexity of nursing care. The synthesis the nurses try to attain is a situation in which the nursing care can be experienced as 'complex and meaningful caring situations, where both inner and external demands are united'.

'To be' or 'not to be' a good nurse as the underlying root metaphor

In a hermeneutic process of interpretation, an underlying root metaphor can emerge if the researcher manages to penetrate the material.19 It is then a question of trying to see and understand what is repressed, concealed and perhaps unexpressed in the interviews. This can be compared with Moccia's12 emphasis on trying to uncover vague and veiled relationships between concepts and phenomena, which make a new understanding of the whole possible. In dialectics, the basic idea is that there is always a difference between what things 'seem' to be and what they really are. The nurses' situation can be described as a struggle between what one wants and what one can actually achieve. Nurses spoke of situations where the will was stronger than their ability and what was realistically possible. From the nurses' perspective, a high nursing care intensity level means a chaotic situation characterized by anxiety about what can happen and of disharmony when the wholeness is lost. Nurses see only a series of tasks to be done; the individual patient's needs are not clearly recognized. The nurses have reached the limit of their capacity. Such a situation can be understood as a state of 'non-being' for the nurses. The opposite situation is a low nursing care intensity level, which at the beginning of the study was supposed to be the opposite situation: one that the nurses would desire. The study shows, however, that the optimal nursing care intensity level is the desirable situation. Nursing tasks are demanding, but it is possible within the available time to provide good nursing care to the patients and then the nurses have time to 'see the patients' needs'. That is the foundation behind the significance of nursing care. Nursing care can then be understood as consisting of 'meaningful caring situations'. Nurses' experiences can thus be described as a struggle between either 'being' or 'not being' a good nurse. This can be said to be the underlying root metaphor in the present research.

Discussion

The results of this study illustrate the fact that patients' care needs in clinical reality cannot be put in opposition to nurses' needs, colleagues' wishes, or the running of the ward. On a theoretical level of care, ideal and good nursing care and patients' needs are often given precedence. In a clinical situation nurses are, however, bound to divide their time between all the patients for whom they are responsible, as well as reserve some time for breaks and for the running of the ward as a whole. The real challenge is to reach some form of balance and to be able to create a synthesis in a problematic situation while simultaneously focusing on 'what is best for the patient'.

A prominent characteristic of the nurses interviewed was their willingness and desire to provide patients with good care (ie a caritative approach can be seen in the nurses' attitude to the patients). This can be compared with 'caritative caring', according to

Eriksson,20 distinguished by human love and charity. Eriksson's theory of caring is an ideal model, providing guidelines for 'caritative caring'. According to earlier research, nurses of today value the patient_/nurse relationship, but they do not always have the power and possibilities to meet the patients' care needs. In the same way, in this study the nurses' inner demand, 'to be a good nurse', could not
be realized in all situations, and this was due to various external factors in the situation. This 'inner demand' could be interpreted and understood as a strong ethical demand originating from the fact that the nurses had understood the patients' message of their suffering expressed in their caring needs.21
According to research there are today many barriers to caring, such as staff shortages, being busy and a lack of time. The nurses wanted to be or stay with the patients, but there was not always time for this. Several researchers have pointed out the importance of being in the world of suffering patients. For the nurses it was important to be able to care for the patients in the best way. It was not enough to know what was good for the patients; it was necessary to be able to realize and carry out their inner ethical demand to provide good care. The nurses were simultaneously hoping for a meaningful work situation with reasonable requirements. The struggle between 'being' and 'not being' a good nurse was dialectic by nature and describes the dialectic conflict and tension between the 'inner demands' of the nurses to provide good work and 'external demands' due to working pace, work organization, economic realities etc. in the caring context. The nurses thought that these ethical conflicts were very difficult and on the border of being understood as ethically unsolved dilemmas.
The limitations of this study concern the relatively small number of focus groups.
However, all the participants were representative of the study population. Concerning the influence of other factors within the nurses' work situation, no exhaustive list was achieved, but important contextual factors emerged that should be further investigated in future studies. Nevertheless, this study draws attention to the importance within nursing science of taking into account contextual factors, as well as trying to comprehend the nursing care situation as a whole. Benner and Wrubel1 have emphasized the importance of concrete factors; that is, human beings interpret and understand their situation in relation to their history, their culture and factors in the situation.

Implications

The findings of this research draw attention to nurses' working situation and its complexity. They support the idea of continuously offering possibilities for the professional supervision of nurses, so that they can learn to handle these severe ethical dilemmas. The total workload, including nursing care intensity and other contextual factors in the situation, have to be taken into account by nurse managers.
There is a real challenge for managers, at first in trying to understand nurses' ethical dilemmas between the 'inner demands' of the nurses to provide good nursing care and 'external demands' due to working conditions, and then in trying to solve these problems. Successful staff planning is one prerequisite for making 'good care' possible,

but also, by focusing on the ethical issues in nursing care, nurse managers can affect the atmosphere on hospital wards and the caring culture.6 According to the findings of this research, nurse managers must analyse the external factors in the working situation, asking what is causing these often extreme chaotic situations. In many cases the reason was a very high nursing care intensity level, which can often be solved through staff planning. Resource planning and other administrative tasks are important for managers, but there is also a need to try to reach a deeper understanding of nurses' working situation and its ethical demands, which could help nurse managers in supporting the nurses in their charge. According to Nyberg, nurse managers also suffer from ethical dilemmas between administrative goals and the caring mission of nursing. Discussions on ethical issues between nurses and managers could have a preventive effect on long-term stress and burnout among both managers and nurses.

Conclusion

A challenge in the present study was the use of the dialectic laws in the interpretation process, since these seem to have been used in only a few studies6,12 in nursing science. This study suggests, however, that dialectics as both method and theory can provide a possibility if nursing science research aims at 'revealing' and 'uncovering' phenomena and the relationships between them. If nursing care as a phenomenon is understood as consisting of 'complex caring situations', dialectics can be used as a fruitful method of revealing the complexity of clinical reality. This presupposes, however, an acceptance of the 'contradictory nature of reality' and, simultaneously, a dissociation from the search for 'general truths', which in itself can be regarded as foreign to hermeneutics.

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API CPH CWS
Year I Term I

CPH 101 : English Special Program

Qn 1. In not less than 3000 Words, Write a story and end with a statement "…when I wake up and found that it was a dream I was relieved.

Qn 2. To save, to invest and to insure, is to behave as if God does not care, as believer discuss.

CPH 102 : First Aid Fundamentals and life skills

1. a) In your own understanding, explain what is meant by the term first aid
   b) Describe the necessary procedures/actions to be followed while administering first Aid
   c) Discuss the different contents and their respective uses in a first Aid box
2. a) Explain the five emotional – focused coping strategies as identified by Folkman and Lazarus
   b) Identify the needs of neurotic persons that help them not to experience anxiety
3. a) What is Emotional intelligence?
   b) Account for the Ability Model as used in Emotional intelligence

CPH 103 : Computer Applications

1. a) Discuss the merits and demerits of using computer systems.
   c) Discuss the features of good information.

2. a) Discuss different components of a computer.
   b) Discuss some of the forms of data communication.
   c) Explain the good qualities good data communication.

5. a) With examples explain different types of net working.
   b) Discuss the functions of operating systems.
   c) Discuss different types of net works you know.

CPH 104 : Mental Health

1. a) What is mental health?
   b) How do you identify mental health wellness and planning interventions?
2. a) Describe the physical and biological interventions of nursing
   b) Account for the work related stress in Nursing
   c) Illustrate the 10 strategies to cope with stress in nursing
3. a) How do you resolve the physician - nurse conflict
   b) Discuss the various methods of physical arousal in managing mental health disorders
   c) Explain the various coping exercises against anxiety in nursing