

Perspectives In Psychology



The Official Undergraduate Psychology Journal of
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"Mystery Moods": The Effect of Unattended Information on Mood

*Rena Krakowski
Esti Miller
Helen Saxon*

Have you ever "caught" a bad mood without knowing it? Has your mood ever suddenly turned hostile, seemingly for no particular reason, but then you find that you had actually just overheard an unpleasant encounter that you had not paid attention to? A number of studies have been conducted to determine the effects of unattended information. This topic is of great interest to the marketing industry as well as to consumers. In a study concerning subjects' buying behaviors as influenced by subliminal visual suggestions to buy chocolate, results failed to indicate any significant effect of the subliminal messages (George & Jennings, 1975). Furthermore, masked verbal suggestions of itching also neglected to influence subjects' behaviors (Mitchell, 1995). However, other studies have shown that unattended information may have a significant effect on behavior. In an experiment conducted by Underwood in 1994, results indicated that subjects who subliminally viewed a smiling face were more likely to view an expressionless face afterwards as sad than were subjects who did not receive the subliminal stimulation. Unattended information can also have a substantial effect on subjects' states of anxiety. In a study that examined the effects of symbiotic subliminal messages ("Mommy and I are one") on anxiety levels, results indicated that the undetected message produced lowered levels of anxiety (Orbach, Shopen, & Mikulincer, 1994).

In the present study, researchers were interested in determining the behavioral impact of unattended information; whether audible - yet unattended - information has a significant effect on mood. Based on the latter two findings, experimenters surmised that unpleasant unattended information would have a negative influence on mood.

Thirty-five undergraduates (all female) attending Stern College for Women participated in the study. Subjects agreed to take part in the experiment upon being asked. Twenty-one of the subjects were used only to establish preliminary measures but were not used in the actual study. Thus, fourteen subjects participated in the experiment.

The experiment was conducted using the American MegaTrends Computerized Speech Lab (CSL). Subjects were tested using the dichotic listening task, with the story entering the right ear and the word list entering the left ear simultaneously.

A single-factor, between-subject design was employed. The independent variable manipulated was the presence of either unattended unpleasant information (for example, "kill") or unattended neutral information

(for example, "table"). Subjects were randomly assigned to both conditions as they appeared to participate in the experiment.

A preliminary study was conducted to establish an efficient mood inventory that would be sensitive to mood changes. The experiment was described as being concerned with subjects' memory of the details in a story. With this in mind, subjects were instructed to pay careful attention to the details of the story heard in their right ear. The story was presented in the right ear, using a dichotic-listening device, while the independent variable, a list of neutral or unpleasant words, was presented in the left ear. The story was presented as a series of seven sentences of approximately eight seconds duration each, with a one second pause between sentences. Subjects' later performance at chance on a forced-choice recognition test established the fact that the list of words was unattended. Immediately following the listening task, subjects were instructed to complete a true-or-false questionnaire (unrelated to the story), which would be followed by questions on the story. The questionnaire used was the Buss and Durkee Hostility Inventory, which was used to assist in establishing an effective test of the dependent variable, mood.

The inventory was subdivided into seven subscales of hostility (negativism, resentment, indirect hostility, assault, suspicion, irritability, and verbal hostility). This test was used to identify the specific aspects of mood that are subject to change rather than state qualities. It was established that resentment, indirect hostility, and verbal hostility fluctuate the most. Because the effect of the manipulation was extremely short-lived, the questionnaire needed to be concise. Thus, the questions pertaining only to resentment, indirect hostility, and verbal hostility were used. Six other questions sensitive to mood changes were added. Subjects were assured that the questionnaire would be examined anonymously, to ensure that subjects would answer honestly. Following the completion of the survey, subjects were asked questions related to the story.

In the actual study, subjects were given the same instructions as in the preliminary subjects. They were told to pay attention to the details of the story in their right ear, and that they would be asked questions about the story after hearing it. Following the presentation of the story in the right ear and the unattended words in the other, subjects were told to complete a questionnaire. Then, subjects were asked six questions about the story.

Subjects' moods were assessed using a revised edition of the Buss and Durkee Hostility Inventory. One of the thirty-six true-or-false questions was disregarded due to lack of clarity in phrasing. Thus, a thirty-five question survey was utilized. Scores were the sum total number of hostile responses.

The unattended information consisted of neutral words or hostile words presented below the auditory threshold level. If one paid attention to the words, they were faintly audible, but subjects, who were concentrating on and attending the information from the right ear only, could not identify the words. Subjects performed at chance on an ensuing forced-choice test.

Mood of subjects after presentation of unattended neutral or hostile words

A t-test was performed on the data from the mood inventory. This analysis, using a one-tailed p-value of $p < .0025$, yielded significant results. The following values were calculated: the mean hostility score for the control group (neutral words) was 8.857, with a standard deviation of 1.069, and the mean hostility score for the experimental group (unpleasant words) was 17.857, with a standard deviation of 3.848. The t-score obtained was 6.603, which falls well above the criterion level of 3.428 necessary to establish significant results using a degrees of freedom value of 12. Thus, the unattended unpleasant information affects a significantly bad mood with respect to the unattended neutral information.

Research indicates that subliminal messages may have a significant effect on human behavior. The present study extends previous works by establishing that auditory undetected messages do, in fact, alter subjects' moods.

Initially, it was projected that subjects in the experimental group, who were presented with unpleasant unattended stimuli, would manifest heightened levels of hostility. Findings corresponded with the experimenters' hypothesis. Subjects in the unpleasant word-group scored substantially higher in a hostile-mood assessment than subjects in the neutral word-group. A sixty-six question hostility inventory was utilized to assess mood after subjects were presented with the story and unattended words. However, it was discovered that the hostility inventory employed was too long; the effect of the unpleasant words wore off before subjects could complete the inventory. In addition, the hostility test measured general hostility rather than temporary mood; variations in scores were dependent more on subjects' over-all disposition, rather than fluctuations in mood. Thus, experimenters edited the inventory so that it would assess mood changes better.

The implications of this study are far-reaching: information that enters the mind unattended **does** have a powerful effect on mood. Any stimuli in the general environment, including those we believe we are unaffected by, may indeed have some control over the way we behave. Even the lyrics to the "background music" playing in shopping centers could profoundly affect the moods of unsuspecting shoppers. Dialogues "overheard" but not consciously registered may alter our moods.

In conclusion, although this study was conducted under strict laboratory conditions, the findings are generalizable to various other situations, under many conditions. The phenomenon of unattended information affecting mood was observed under laboratory settings, but it is intuitively obvious that the underlying mechanism exists in daily life.

NEUTRAL WORDS

FIVE
SOON
NET
TONE
ROUND
CARD
ROLL
WALK

UNPLEASANT WORDS

KILL
BLOOD
HATE
CRIME
PRISON
VIOLENCE

STORY PRESENTED TO RIGHT EAR: (in eight-second increments)

*One day, Robert, Mary's friend, went to a sporting goods store. Mary's birthday was coming up, and Robert wanted to buy her a present.

*At Andrew's Sporting Goods store, Robert met Sandy, who was both Robert and Mary's friend.

*Sandy suggested that he buy Mary a basketball, because Mary was an avid basketball fan, and the tread on her basketball was worn out.

*Just then, an announcement came over the PA system, informing all customers about the sale on Wilson basketballs.

*They were selling the Wilson basketballs for two for thirty dollars, while the Spalding basketballs were twenty dollars each.

*Robert couldn't decide which one to buy, so he asked the salesperson, Mr. Kitoso, for his opinion.

*He, the expert on basketballs, convinced Robert that the best buy was the ProSports basketball for only twenty-three dollars.

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Adults' Responses to "Normal" and Craniofacial Infants Varying in Facial Expression and Perceived Attractiveness

Ilya Vinnik

Introduction

K. Lorenz (1943) first suggested that some physical and behavioral characteristics of infants ("babyishness") serve to elicit favorable reactions from adults. This suggestion stimulated research into the stimulus properties of infants. In general, research in this area confirmed that infants illicit approach and positive reactions from adults (Berman, 1976; Berman et al., 1975). Recognizing complexity of infants as a stimulus, Hildebrandt and Fitzgerald (1982) examined the effects of physical appearance of infants on adults. Other studies looked at mothers' responses to crying and smiling infants (Donovan, Leavitt & Balling, 1978). A series of studies by Frodi (Frodi & Lamb, 1978; Frodi, Lamb, Leavitt & Donovan, 1978) found that crying infants arouse autonomic arousal while smiling infants do not.

Thus, the fact that "normal" infants elicit automatic reactions from adults is supported by a significant body of research. However, there is a lack of similar research dealing with infants with craniofacial anomalies. The lack of such research seems striking at first glance (Barden, 1990), especially since incidence of craniofacial anomalies is fairly high. It has been suggested that this shortage of research is due to researchers discomfort with the subject (Berscheid & Walster, 1974). Threat to a "perfect baby" image has been suggested as one of the reasons for this lack of research. General unwillingness of people to admit the real importance of physical appearance and attractiveness in social judgment and treatment of individuals, especially those with craniofacial anomalies, may be another (Stephan & Langlois, 1984).

Given the importance placed by modern psychology on development of early relationships further research is needed. The little research that has been done deals with adult patients with cleft lip/pallet. While there has not been shown any increased risk of psychiatric disturbances in the group, there are consistent findings that place these patients under an increased risk of experiencing decreased social proficiency (Peter, Chinsky & Fisher, 1975).

Previous research indicates that affected infants who are rated as less attractive receive differential treatment from both parents and unrelated adults. In addition, families of CFA children undergo stress of dealing with disfiguring condition. Based on earlier research linking craniofacial anomalies in infants with difficulties in later psychosocial development, and given the above findings the continuous study of infant affected with CFA is of great importance. This study hopes to establish a relationship between the infants' expression and the perceived attractiveness of infants with cleft lip/pallet, facial hemangiomas, and other craniofacial conditions. These infants' expressions were also compared to

healthy infants.

Abstract

Male and female college students were shown slides of infants exhibiting various expressions ranging from smiles to cry faces. Subjects were asked to identify the expression and to judge the infants' attractiveness. The slides were taken of infants belonging to one of four groups: normal control, cleft lip/palate, hemangioma, and other craniofacial anomalies. It was found that subjects were able to recognize expressions of infants and, as theorized, that infants expressions influenced attractiveness ratings.

Method

Subjects

17 male and 18 female undergraduate students participated as part of a psychology class. The experiment took place in two sessions.

Materials

Slides presented to subjects were taken from videotaped sessions of mother-infant interactions as part of a larger, more comprehensive study being conducted by Dr. Harriet Oster in connection with the Institute Of Reconstructive Plastic Surgery (IRPS) at the New York University Medical Center (NYUMC). The slides presented to subjects were of infants in one of four groups: normal control(NC), cleft lip/palate(CLP), facial hemangioma(HMG), and other craniofacial anomalies(CFA) including Hemifacial Microsomia, Apert Syndrome, Asymmetry, Bi-Coronal Synostosis, Facial Cleft, or Goldenhar Syndrome. Subjects rated attractiveness and expression on a seven point Likert Scale. Some personal data was also collected for further use. Depressive symptomatology was assessed using Center for Epidemiological Studies Depression Scale (CES-D, Radloff & Wales, 1977). The STAI: Trait Anxiety Scale and Marlow-Crowne Social Desirability Scale were also filled out by subjects for further analysis.

Procedure

Subjects were presented with a slide for a brief period of time and asked to rate it on expression scale. After completing all slides they were presented with the same sequence of slides and asked to rate the slides on attractiveness. Prior to the presentation of slides subjects completed self-report questionnaires.

Results

Because the study is still in progress, only preliminary results are available. However, even with a limited amount of data analyzed important results are visible. It is clear that the perceived expression of an infant played an important role in the perceived attractiveness of the infant. Expression ratings were compared and found to correlate highly with the objective criterion coding. The NC group was rated as significantly more attractive than either the CLP, HMG, or CFA groups. A clear difference in rating of expression is seen across the slides rated when compared to objective criteria (BABY-FACS, Oster & Rosenstein, 1996). The cry-face slides received a mean rating of 1.69 (Std.=.62), negative face slides received a mean rating of 2.59 (Std.=.58), interest face slides received a mean rating of 4.14 (Std.=.3), smile slides received a mean rating of 5.56 (Std.=.86).

For the purposes of data analysis, data for CF group and for HMG group were combined to form a CFH group. Analysis of the data collected in the first session revealed clear relationships between the mean expression ratings and the mean attractiveness ratings within each group (NC: $n=11$, $r=.58411$, $p=.0592$; CLP: $n=8$, $r=.9138$, $p=.0015$; CFH: $n=15$, $r=.5295$, $p=.0424$). Similar results were achieved in the analysis of the relationship between the mean attractiveness ratings and the BABY-FACS ratings (NC: $n=11$, $r=.6233$, $p=.0405$; CLP: $n=8$, $r=.9465$, $p=.0004$; CFH: $n=15$, $r=.4257$, $p=.1137$).

Discussion

The results of the study, while not complete, already reveal several interesting points. One important finding was that adults are very reliable at judging the infants' expression even in cases of infants with severe craniofacial anomalies. Subjects were also reliable at differentiating levels of attractiveness in NC infants, as well as CLP, CF, and HMG infants. These ratings are consistent with previous studies in demonstrating that all infants are not cute, nor are they all ugly as is commonly stereotyped around many hospitals (Langlois & Stephan, 1984).

Perhaps a more important, while yet only initially analyzed, is the relationship between the expression scores and attractiveness scores. Preliminary analysis of data show that expressions of infants effects attractiveness ratings. Infants, who received higher ratings on the expression, were also perceived as more attractive.

Physical attractiveness has been shown to be an important predictor of behavioral patterns in adults (Langlois & Stephan, 1984). Langlois and Stephan (1984) showed that babies judged as more attractive were also judged as smarter, more likable, healthier, and more attached to the mother.

Data collected in this study, as well as studies done earlier, reflect an important relationship in the process of infant socialization at various levels of physical attractiveness. Strong and consistent expectations for the behavior of attractive and unattractive individuals are elicited soon after birth (Langlois &

Stephan, 1984). These expectations lead to differential treatment of infants immediately after birth. Loren (as cited in Langlois & Stephan, 1984) argues that physical characteristics of the young of a species are powerful determinants of adult affective and care-giving responses.

The results of this pilot study serve as an important incentive for further research in this area. While the extent to which data from photographs can be generalized to real life is unknown, the relative non-salience of photographs, as compared with live stimuli, suggests that effects of physical attractiveness may be magnified in real world situations (Langlois & Stephan, 1984). Lack of research in this area is disturbing since the incidence of craniofacial anomalies of various severity is fairly high and implications of difficulties in early social development are very serious. Further studies are needed to fully determine the characteristics of infants and adults that constrain or facilitate interactions.

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Help-Seeking Behavior in Women

Shoni Mirvis

In recent years, there has been a lot of research on help-seeking and dependent behavior in women. A study by Ashton and Fuehrer (1993) supports the view that females display more dependent and help-seeking behavior than males. In their experiment, a questionnaire with various scenarios describing situations in which help was needed was distributed to over 300 college students. They were asked to rate the situations in which they thought they were most likely to seek help. The results indicated that females were more likely to seek emotional and instrumental help than their male counterparts. Furthermore, when confronted with failure or situations of low control, females displayed significantly more helpless responses whereas males tended to develop mastery-oriented behaviors (Baucom cited in Boggiano and Barrett, 1991).

Another study of over 1000 Chinese women shows that women have a stronger external locus of coping (tendency to seek help from others) in areas of marital, familiar, interpersonal, and occupational domains, whereas men tended to have more self reliance in these areas (Shek, 1992).

Other studies have connected help-seeking behavior with the gender role appropriateness of the task being performed. These studies suggest that females will only display more help-seeking behavior on perceived male tasks, but on perceived female tasks they will display less dependent behavior. Similarly, males will display more help-seeking behavior on perceived female tasks than they will on perceived male tasks. An experiment conducted by Wallston studied men's willingness to request help on perceived male, female, or gender-neutral tasks. Wallston manipulated the gender role appropriateness of the tasks by notifying the subjects that success on the task corresponded to either high levels of masculinity or femininity. When the subjects encountered failure in performing the tasks, gender typed males were less likely to seek help on perceived male tasks than on female or gender-neutral tasks. Wallston proposed that requesting help on a male-oriented task was too threatening because it implied failure in a task in which culture expects men to succeed (Wallston cited in Ashton and Fuehrer, 1993).

The Wallston experiment establishes that cultural expectations and gender role appropriateness are critical determinants in producing or avoiding help-seeking behavior in men. A study by Boggiano and Barrett (1991), however, suggests that these factors do not affect women's help-seeking behavior in the same manner; women still display the same high levels of help-seeking behavior in perceived female and male tasks. This study theorized that across tasks people would expect helpless behavior from females and mastery-oriented behavior from males.

The subjects were given vignettes to read about children who either ask for help or who persist in performing a task. Regardless of whether the task was a perceived female task (sewing a flag) or a perceived male task (fixing a film

strip projector), the subjects assumed that the child who gave up on the task or requested help was female, whereas the child who persisted in the task was a male. This study attributed helpless behavior in women to "expectancy confirmation of socializing agents"(p.488). Since society expects women to be helpless, women often adopt this behavior in order to comply with cultural views. This in turn confirms the societal expectation and further anchors it as a valid cultural norm.

The Boggiano and Barrett study, however, has many difficulties. It only reveals that people expect certain stereotypic behavior based on gender, but it does not show whether their perceptions accurately indicate the actual behavior of people. Also, the theory propounded by Boggiano and Barnett can be applied in a different way. Though society may expect women to be helpless, there are also competing expectations which call for women to be successful in performing certain tasks. The same expectancy confirmation theory should apply for these tasks and cause women to feel capable of performing them on their own. This study fails to explain why only the helplessness expectation is met by women and not the conflicting expectations of being able to do perceived female tasks on their own. Furthermore, this study, as well as many others asserting the predominance of help-seeking behavior in women, is based solely on hypothetical scenarios and does not manipulate real life situations.

These weaknesses raise many doubts about the conclusiveness of this study's findings. Therefore, the question still remains open as to whether the gender norm expectations which Walston showed prevents men from asking for help on perceived male tasks would also inhibit women from asking for help on perceived female tasks, as well as encouraging help-seeking behavior on perceived male tasks.

The following experiment creates an actual help-seeking situation to test men's and women's help-seeking behavior for both perceived female and male tasks. The researcher hypothesized that females display overall more help-seeking behavior than males, yet they display less help-seeking behavior on a perceived female task than on a perceived male task.

Twenty-two subjects enrolled in a biology course at Ramapo College participated in the experiment. The experimenters invited the people in the class to participate in the study, and only those who volunteered were tested. The perceived female task was a doll and a sewing kit containing thread, a button, scissors, and a needle with glue blocking the eye. The perceived male task was a watch, a screw slightly larger than the ones contained in the back of the watch and a tool kit containing a small screwdriver. Other tasks which were set up in the room as part of the cover story included various game pieces with a list of directions next to them creating the illusion of a task.

Students were called in by the experimenters one at a time to a quiet laboratory adjacent to their classroom. The subject was told to sit down at a desk where the experimenter read him/her the directions on how to perform the experiment. The experimenter informed the subject that s/he would be timed on how quickly s/he could complete the four tasks spread out on the table. The subject was told that the experiment related to the effects of competition of

efficiency and that s/he was allowed to ask for help one time and that any additional requests for assistance would add time onto his or her score. This cover story was intended to prevent people from suspecting the true nature of the study and to dissuade subjects from asking for help too readily because the time penalty would limit their efficiency.

The experimenter began timing the task from the moment the subject completed reading the instructions to the first task. Once the subject began the task, the experimenter avoided looking at him or her in order not to create pressure or an overly accessible way to request help. Each subject was given either the male- or female-perceived task. Both tasks were impossible to complete. The instructions for the female-perceived task were to sew a button onto the shirt of a doll. The first step to perform this task was to thread the needle in the sewing kit. This, however, was impossible, as the eye of the needle was glued shut. The perceived male task was to screw a screw into the back of watch. This task was also impossible as the screw given was slightly too large to fit into the hole. The experimenter timed the task until the first request for help or when the duration of the task lasted for over 10 minutes with no help-seeking behavior displayed. This time cap was used in order to save time for the experiment and to prevent unnecessary frustration to the subject who would not request help. When the task ended, the subject was given a questionnaire to assess what s/he thought was the purpose of the experiment and the validity of the perceived female and male tasks. After the experiment was completed, the subject was debriefed and was asked to send the next subject in.

The results of the experiment were analyzed in a 2x2 Anova (sex of subject x gender orientation of task.) Analyses indicated that there no main effect between males and females for both tasks together. Although there was a main effect for the time it took to complete the male-oriented task as opposed to the female-oriented task, an analysis for interactions indicated that this was not related to the gender of the subject.

Though a straight statistical analysis of the data did not produce any significant results, it is highly likely that this is not due to the actual hypothesis. Various circumstances led to 1/3 of the subjects' data being eliminated from the study. Many of these subjects realized that there was an obstacle preventing them from being able to perform the task. Some comments made by these subjects were "Is this a trick?", "I think there is something stuck in the eye of the needle", "I don't think this screw is supposed to fit in here." Aside from ruining the cover story, the ability to recognize that the tasks were rigged for failure was a problem because the subjects did not request help because they realized that it was impossible for anyone to do the tasks, even the supposed helpers.

Other subjects were disqualified from the study for moving on to the next step instead of asking for help on the critical task, and using personal materials (pocket knives) in order to complete the task. Because so many subjects were disqualified, the subject pool was not large enough to provide for accurate results.

Another difficulty in the experiment pertained to the results for females on perceived-male tasks. According to all the literature cited above, females

generally display more helpless behavior than males on perceived-male tasks. Yet the experiment surprisingly didn't show this as a main effect. Therefore, this lack of similarity with other studies indicates that the lack of statistical significance is due to difficulties in the experiment rather than the hypothesis.

Another area in this study which requires clarification is the use of only female helpers. As the study mentioned above indicates, the sex of the helper often determines how much help-seeking behavior will be displayed. There are two difficulties with the use of only female helpers. Firstly, a male who has trouble performing a perceived-male task may hesitate to ask a female helper for assistance because he may doubt that she will be able to solve it better than he will. Secondly, a female may also refrain from asking another female for assistance in a perceived-male task because she may question another female's ability to perform the task. The effects of the sex of the helper on help-seeking behavior requires further study and ought to be a critical component in future research.

Even with these difficulties, this study contributes to the knowledge pool on help-seeking behavior. It is interesting to note that evidence exists to support both sides of the argument as to whether the gender of the task affects a person's willingness to request for help. Many subjects commented that the perceived gender of the task did affect their degree of persistence and help-seeking behavior. Three males who worked on the sewing task reported that they would have persisted for longer if they had been working on watch task. Furthermore, one woman stated that she gave up very quickly on the watch task because she thought "John (the next subject) would be better at this than me and I know I can't do it anyway." These comments support the theory that the gender appropriateness of the task affects help-seeking behavior.

Other comments, however, may indicate the opposite approach. One male said he would have persisted just as long on the sewing task as the watch task, and one female said that she would have persisted just as long for at fixing the watch as she did for the sewing task.

In conclusion, the hypotheses that women display less help-seeking behavior on perceived female tasks than on perceived male tasks remains a viable and noteworthy hypothesis which deserves further study. Additional analysis is being done to improve the efficacy of this design for future research in this area.

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The Effects of Brain Damage on Attention

Miriam Weinberg

Attention disorders have recently come to public awareness. There have been popular articles concerning attention problems in school children. There have also been articles describing the development of new drugs to treat attention problems. At the same time, articles concerning attention appeared in the fields of neuropsychiatry, neurology, and neuropsychology. Over the years, there have been many attempts at defining attention. As William James said, "Everyone knows what attention is. It is the taking possession by the mind, in clear vivid form, of one out of what seems several simultaneous possible objects or trains of thought. Focalization, concentration of consciousness are of its essence. It implies withdrawal from some things in order to deal effectively with others." (Solso, p.123)

Over the past fifty years, with the advent of the information processing theory, a revival in theories of attention has occurred. Attention and impairment of attention are critical in that they affect everyday activities. This article will address problems of attention that occur in brain-damaged individuals.

The human mind is constantly being bombarded with an enormous amount of sensory stimuli. However, the brain has a limited capacity to process all the stimuli with which it is presented at a given moment. Therefore, a person must select which stimuli to process and to what extent to process the information. Processes must exist in the human mind that can select and organize information into manageable and meaningful units. One of the mechanisms by which a person does this is attention. Attention enables an individual to focus on selected stimuli while shutting out the distracting stimuli. Attention depends on the interaction of four components - attentional capacity and attentional focus, selective attention, response selection, and sustained attention (Van Zomeren and Brouwer, p.4).

Humans make use of attention when taking in sensory stimuli from their surroundings. Focusing requires an ongoing allocation of available processing resources to a specific task. This resource allocation is constrained by the limited attention capacity of the human mind. Focused attention is strongly associated with a person's concentration capacity. Attention capacity governs the amount of information that can be handled and the intensity of cognitive processing that can be performed on that information. Attention capacity is not constant. It is influenced by energetic factors such as arousal, drive, and motivation, and structural factors including processing time, memory capacity, and an individual's ability to perform specific cognitive operations.

The capacity for focused attention is directly related to the difficulty of the task and the number of operations that must be performed simultaneously. Tasks requiring divided attention are usually more difficult because of the interference of competing stimuli. Attention performance decreases as the amount of simultaneous information to be processed increases. The quality of

the attention performance is strongly related to how automatic the task is. The more automatic a task, the more processing room there is available for another task. Controlled attention involves those tasks that require conscious awareness as well as high levels of attention processing effort (Schneider and Shiffrin, 1977 as cited by Van Zomeren and Brouwer).

Selective attention enables the use of cognitive resources for selection of particular stimuli while disregarding others. It responds to task relevant information helping to optimize cognitive performance. While this is beneficial, there are some costs associated with selective attention. The likelihood of detecting other potentially relevant information is reduced. For example, if one goes to the airport to pick up a specific friend, he will be focused on finding that friend. In the process of selectively attending, he may not take notice of another friend walking by. Yet by selecting only some stimuli, the level of information to be processed is kept at a manageable level.

Attention has received less emphasis than other cognitive functions in neuropsychological investigations of brain disorders. However, attention problems are characteristic of some neurological diseases and an important feature in others such as in cerebral vascular accidents (CVA), closed head injury (CHI), multiple sclerosis, and Alzheimer's disease. Brain damaged patients are often affected by poor attention span. Such a patient's brain is unable to accommodate multiple cognitive functions at the same time. For example, there was a man who accounted how he completed the task of boiling water. He reported that he would hold onto the handle of the kettle until the water boiled because otherwise other stimuli would interfere with this task, he would get involved in something else, and he would be unable to attend to his original task. Since most cognitive activities require attention and concentration, problems of attention play an important role in brain damaged individuals (Gross, p.102).

A cerebral vascular accident occurs when there is death of neural tissue due to lack of blood and the oxygen and nutrients that it carries. The most intriguing disorder of attention resulting from a stroke is neglect syndrome. Patients with this syndrome have a disorder involving the spatial distribution and allocation of attention. Neglect syndrome is the failure to attend to, respond to, or be aware of stimuli in the spatial field contralateral to the damaged hemisphere (Heilman, 1979). Many investigators noted that neglect was more often associated with the right hemisphere lesions than with lesions to the left hemisphere. In such a case, visual scanning is usually impaired because the patient looks only to the right hemispace, thus missing information on the left. When being tested, patients with neglect often miss targets on cancellation tasks, such as crossing out specific letters or numbers, or fail at line bisection, even though they are physically capable of adequately perceiving these stimuli when given cues to turn their heads to the impaired side. Errors increase when the informational load is increased and when the task is done too hastily (Heilman and Valenstein, pp.279-285).

Patients with severe neglect often do not realize that they have omitted a space and made errors. They rarely report having difficulties. It is not denial

rather the patients are usually truly unaware of their deficit. They claim to be able to perform such tasks as reading, however, when they are formally tested they are often found to be unable to perform the task (Piasetsky, Ben-Yishay, Weinberg, and Diller, p.207). Inability to direct one's attention to a specific hemispace may lead to embarrassing situations. For example, one man suffering from severe neglect walked into a women's rest room after neglecting to see the first two letters of "women's." This caused him to read the sign as "men's" (Posner and Rafal, p.182). In addition to being unaware that they have missed something, the patients usually do not behave as though they are experiencing partial perceptions, rather they proceed as though appropriate representation of the environment has been accomplished.

One proposed hypothesis to explain spatial neglect is unawareness or failure because of an attention deficit to direct attention in a specific direction. Another hypothesis is the inability to disengage from stimulus one is currently attending, move attention to a new stimulus, and then engage that stimulus (Posner, 1984). For example, it was observed that on the standard cancellation task, subjects with neglect would first start canceling targets on the side of the sheet that is ipsilateral to their lesion or in the middle of the page. Although they can disengage from specific targets they often returned to these targets and canceled them again (Heilman and Valenstein, pp.309-312).

Somatosensory neglect is also common. Patients will often give an inaccurate report of spatial orientation, or body position. Some patients exhibit hemi-asomatognosia, neglect of one side of their own body, acting, for example, as though their left arm or leg doesn't belong to them. Auditory neglect has also been reported in certain patients who had experienced a stroke. Most studies on auditory neglect were done with dichotic stimulation. Using this method, it is difficult to detect auditory neglect because pathways from each ear project to both hemispheres. Therefore, auditory stimuli from the left hemispace could be processed in the left hemisphere. However, recently Elovson conducted a study in which she tried to clarify the abnormal responsiveness of CVA patients with right side visual neglect when given auditory stimuli to the neglected side. She found that patients inaccurately localize sounds delivered to their neglected side. More specifically she found that when the sound was delivered to the patient's neglected side, the patient's report of his perception of the sound source was biased to the right. Her finding indicated that some patients with visual neglect were also found to have auditory neglect (Elovson, 1997).

Attention problems also affect patients with multiple sclerosis. About ten percent of patients with MS exhibit a progressive decline in cognitive abilities. Multiple sclerosis is characterized by multifocal areas of demyelination. Learning, memory, and response selection are most commonly affected. These impairments are associated with reduced perceptual-motor speed, psychomotor slowing, and attention difficulties. Patients with MS experience difficulty maintaining consistent effort on tasks. When information level increases, they show decreases in performance. They also experience a slowed rate of processing. A frequently reported symptom of multiple sclerosis is fatigue, which is associated with impairment of attention. When fatigued, thinking slows down

and the processing of information becomes more difficult and attention capacity is easily overwhelmed (Cohen and Fisher, 1988).

Closed head injury is usually the result of contusions and diffuse axial injuries. Attention processes are likely to be affected by a closed head injury. When interviewed CHI patients are often found to have forgetfulness as well as poor attention and concentration while doing single or simultaneous tasks. This suggests that an inability to adequately divide their attention exists. Van Zomeren and Deelman (1978) demonstrated that the slowing of information processing is proportional to the severity of the injury (Van Zomeren and Brouwer, pp.63-71).

There is some evidence for increased sensitivity in subacute patients (patients within the period of one to six months after injury) to interference from more automatic tendencies. This was observed in the modified stroop task where subjects were instructed to read the words rather than say the color in which the word was written (Bohnen, 1991 as cited by Van Zomeren and Brouwer, p.67). The "unfamiliar" task of color naming was interfered with by stimuli that forced the subject to switch back to reading. Subjects in the subacute stage required about 106 seconds to read the word, while controls needed about 97 seconds. It took the CHI patients longer to overcome the interference of the dominant response tendency to read the words. This is a result of the attention deficits that the head-injured patient encounters (Van Zomeren and Brouwer, p.67).

Alzheimer's disease has been viewed as a progressive cerebral disease associated with memory loss as the main behavioral feature. However, recently with the broadening of Alzheimer's research impairments of attention in patients with AD have been discovered. In Alzheimer's disease, there is evidence of a decreased divided attention ability. Such a phenomenon has been studied through dual-task techniques. Parasuraman (1985) and his colleagues found that patients with early mild Alzheimer's had difficulty timesharing a letter classification task with a simple reaction time task, even though each task could be performed reasonably well on its own. The main task of the dual-task condition was letter matching or pattern matching where subjects reacted by saying if a letter was the same or different than the letter presented to them. The second task was a simple auditory reaction task. Slowing of reaction time in the dual task increased with the patient group with AD but not in the healthy control group. The findings of this experiment point to a reduced capacity to timeshare activities in Alzheimer's patients (Van Zomeren and Brouwer, pp.105-106).

There is a slowness of information processing associated with Alzheimer's disease. This leads to problems involving divided attention. Impairments of divided attention, as a result of slow cognitive processing, rise with increased dementia severity. There is also evidence that Alzheimer's patients are disturbed in terms of selective attention. When patients were asked to press a button when the letter X appeared, they did almost as well as the control group. When they were instructed to react to X only when A preceded it, the hit rate for the patient group decreased considerably (Alexander, 1973). The inability to separate the wanted stimuli from the distracters demonstrates the reduced capacity for selective attention among patients with AD (Van Zomeren and Brouwer, p.99).

This article dealt with just some brain pathologies where attention problems are a factor. There are many more brain diseases, such as epilepsy and Parkinson's disease, where attention is involved. Strides in research of attention and its effects on cognitive functioning have taken place, yet there are still issues in this area which need further exploration and understanding.

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Serotonin Receptors and Suicide: Does a Relationship Exist?

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Altered brain serotonin has been implicated in the etiology of major depression and suicide. In particular, low concentrations of 5-hydroxyindoleacetic acid in the cerebrospinal fluid has been found in subjects who attempted suicide by violent means (Asberg et al., 1976; Traskman et al., 1981). Furthermore, recent research of blood platelets has shown a decrease in platelet 5-hydroxytryptamine (5-HT) reuptake in depressed patients. However, post mortem brain studies of suicides has produced mixed findings regarding the effect of serotonin receptors on depression and suicide. Although studies of platelets are simpler to conduct than post mortem brain studies, the latter is more relevant in studying behavioral disorders. Post mortem brain tissue provides direct measures of neurotransmitters and receptors within the brain (Lowther et al., 1997).

Currently it is thought that 5-HT affects multiple receptors. Seven classes or receptors have been determined, yet only 5-HT₁, 5-HT₂ and 5-HT₃ have been completely studied. 5-HT₁ has five subtypes associated with it. Of these, the receptor 5-HT_{1A} has been most closely examined. 5-HT_{1A} receptors are located both presynaptically and postsynaptically. Presynaptically, they are most often located in the raphe nuclei of the 5-HT cell bodies. Postsynaptically they are located in both the cortex and limbic system. 5-HT_{1A} receptors have been most strongly implicated in depression and suicidal behavior. Furthermore, activation of this receptor has been shown to produce antidepressant effects. 5-HT_{2A} receptors have also been hypothesized to be involved in depression and suicidal behavior.

Many researchers have hypothesized that a decreased number of serotonin receptors would be found in the brains of suicide victims over nonsuicide victims. Postsynaptic 5-HT_{1A} and 5-HT_{2A} have been examined in numerous studies of post mortem brain tissue of suicide victims. However, no clear results have emerged from these studies. This article attempts to survey some of these studies and proposes a number of factors which hinder the interpretation of these results. Moreover, general guidelines are offered to help obtain more unified results.

Various studies have examined the importance of 5-HT_{2A} receptors in the etiology of suicide and depression. However, no clear results have emerged. Stockmeir et al. (1997) examined 5-HT_{2A} receptors in post mortem brains of 13 suicide victims with major depression. Using radioligand binding with [³H] ketanserin, he examined the right prefrontal cortex (area 10) and the hippocampus. Stockmeier found no significant difference between suicides and

controls. Lowther et al. (1994) also studied 5-HT₂ receptors with a binding of [³H] ketanserin. He included 73 subjects who died from suicide and had a retrospective diagnosis of depression. He examined the frontal, parietal, and temporal cortexes (areas 7, 10, 21 and 22) along with the hippocampus, caridate and thalamus. Lowther found no significant differences between suicides and controls even when suicide victims were divided by violence of death and whether they had recently received antidepressant medications. Cheetham et al. (1988) also examined post mortem brains of suicide victims and found similar results as Stockmeir and Lowther. Cheetham examined the frontal, temporal and occipital cortex of suicides that died nonviolently. He also used radioligand binding with [³H] ketanserin. He found no significant differences. Similar results were obtained by Arranz et al. (1994) who studied areas 9, 10 and 11 of the frontal cortex using [³H] ketanserin in 18 suicide victims and a comparative number of controls. These results are comparable to studies done by Owen (1986, 1983) and Crow (1984). Crow (1984) looked at area 10 of the frontal cortex and found no significant differences between the number of 5-HT_{2A} receptors of suicides and controls. Similarly, Owen (1986) found comparable results. He examined the frontal and occipital cortex of suicides that died by nonviolent means. Again, he used [³H] ketanserin and found no significant differences.

However, other studies have found significant differences in the number of 5-HT_{2A} receptors in the brains of suicide victims. Hrdina (1993) examined 5-HT₂ receptor sites using [³H] ketanserin binding. Brains of 10 suicide victims were examined. All 10 subjects had not recently used psychotropic medication which would interfere with the binding of serotonin receptors. The prefrontal cortex, amygdala and hypothalamus were examined. Hrdina found that the density of 5-HT₂ receptors in the prefrontal cortex and the amygdala increased by 67% and 97% respectively in suicide victims over controls. However, there was no difference in the affinity of 5-HT₂ receptors between suicides and controls. Similarly, Arora and Meltzer (1989) found an increase in 5-HT₂ receptors binded with [³H] spiperone. This increase was only found in the frontal cortex (areas 8 and 9) of subjects who died by violent means. However, no significant difference was found in subjects who died by nonviolent means. This study, however, did not provide any psychiatric information about the subjects. Arango (1990) also found a significant increase in 5-HT₂ receptors in suicide victims. He found this increase in area 9 by binding [¹²⁵I] LSD to 5-HT₂ receptors. Increases in 5-HT_{2A} receptors were also found in post mortem brains of suicide victims by Stanley (1983) and Mann (1986). Both found increases of 5-HT_{2A} in areas 8 and 9 of violent suicide victims.

In contrast, one study by Gross-Isseroff (1990) found lower numbers of 5-HT_{2A} in suicide victims. However, this difference was only found in areas 8 and

9 of 11 suicide victims under 50 years old. No significant difference was found in nine suicide victims who were older than 50 years old.

Researchers have also examined 5-HT_{1A} receptors in the brains of depressed suicide victims. These results have also been inconclusive. Lowther (1997) measured 5-HT_{1A} receptor binding sites in the frontal and occipital cortex, hippocampus and amygdala. All subjects had a retrospective diagnosis of depression and were free of other psychiatric illnesses. Thirty subjects were divided into two groups. Those free of antidepressant medication and those who were recently treated with antidepressants. Using saturation binding with [³H] 8-OH-DPAT, Lowther found no significant differences between controls and suicides. These results even occurred when the violent nature of death was examined and when subjects were divided on the basis of antidepressant treatment.

Stockmeier (1997) also examined 5-HT_{1A} receptor sites with [³H] 8-OH-DPAT. He found no significant differences in the hippocampus, parahippocampal gyrus, dentate gyrus or in the right prefrontal cortex of 13 subjects who died by suicide compared to controls. Arranz (1994) found similar results when he binded [³H] 8-OH-DPAT to 5-HT_{1A} receptor sites in 18 suicide victims. However, victims that died by drug overdose showed a decrease in 5-HT_{1A} receptors. Arranz studied the frontal cortex of these victims. Dillon (1991) also found no significant difference in 5-HT_{1A} receptor binding sites in the prefrontal cortex (areas 8 and 9) and the hippocampus when he used [³H] 8-OH-DPAT binding. Similarly, Cheetham (1990) found no significant differences in 5-HT_{1A} receptors in area 10 of suicide victims' brains.

Other studies of 5-HT_{1A} receptors have found significant differences between suicides and controls. Arango (1995) found an increase in 5-HT_{1A} receptors in the cortex of suicides. However, this increase was in the ventrolateral areas 45 and 46 and not in areas 8, 9, 11, 12, 24 or 32. Similarly, Joyce (1993) discovered a higher number of 5-HT_{1A} receptor binding sites in the temporal and entorhinal cortex of suicides. However, only a small sample of subjects was used in this study. Matsubara (1991) also found increases in 5-HT_{1A} receptors in the prefrontal cortex of suicides. These results only applied to males who died nonviolent deaths. No psychiatric information was available for these subjects at the time of death.

Other 5-HT₁ receptors have been examined. For example, Arranz (1994) studied 5-HT_{1D} receptor binding sites using [³H] 5-HT. He found a decrease in binding affinity of 5-HT_{1A} in depressed suicides and a decrease in 5-HT_{1D} binding sites in nondepressed suicides.

Although many studies have been conducted on serotonin receptors within the brains of suicide victims, no conclusive results have emerged to unanimously support these receptors involvement in suicidal behavior. There are

numerous factors which are involved in this lack of consistency. These studies used a variety of radioligands including [³H] ketanserin, [³H] spiperone, [¹²⁵I] LSD, [³H] 8-OH-DPAT and other radioligands. Furthermore, some radioligands were restricted to single concentrations instead of saturations. Single concentrations of radioligands can not sufficiently determine the specific number of receptor sites or their affinity (Lowther et al., 1993). The use of prescription medication and other drugs may also affect the binding of the radioligands to the receptors. Certain antidepressant medications may affect serotonin receptors in the brain. Many early studies failed to properly examine whether subjects had recently taken medication. Others specifically included subjects who had taken antidepressant medications. It has also been shown that alcohol may influence the effectiveness of brain receptors. Few studies tested the suicides for alcohol.

Furthermore, the age of the victims and the time between death and tissue storage at -80°C may influence the effectiveness of radioligand binding to serotonin receptors.

The large number of brain areas studied may have also caused inconsistent findings. Many researchers examined different areas in the brain. Therefore, it is possible that one brain area may show an increase in binding sites while another brain site may show no differences or even a decrease in receptor sites.

Certain changes are necessary to establish general guidelines which may be useful in future research. Researchers should try to obtain post mortem brain samples in which the storage interval is relatively short. This will help prevent inconsistencies which result from long time delays. In addition, the age of suicide subjects should be consistent. Studies must also test subjects' blood for the presence of drugs and alcohol. If substances are found that may interfere with the receptor's ability to bind to the radioligand, then subjects with these substances should be excluded from the study. Investigators must also increase the efficiency by which they research past medical and psychological histories. Interviews with suicide victims' relatives should be conducted with greater care and concern. Interviews must also be structured to ensure reliability and validity. Efforts must also be taken to obtain larger samples of subjects who are not homogenous. This will enable the results of these studies to generalize to the larger population.

Although the use of various radioligands is important in obtaining more information about the receptors within the brain, researchers should restrict their efforts to radioligands that have been proven to correctly affect serotonin receptors. Single concentrations of radioligands should not be used, rather only saturated radioligands should be binded in future studies. Furthermore, care should be taken to thoroughly examine different areas of the brain. This will enable researchers to establish results that have been fully examined. If researchers adhere to these principals, consistent results may emerge. In addition, these results will have greater statistical power and, therefore, the results will be able to generalize to larger populations.

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The Diathesis-Stress Model: Its Predecessors and Applications

Felicia Schor

Studies done (Eliot and Buell, 1979) on NASA workers who monitored and controlled the space mission from the ground during the last years of the United States moon program found them living a stressful paradox. While on the one hand their overall occupational goal was to put a man on the moon, at the same time they knew that once their mission was completed, the program would be cut back and eventually ended. These workers were working difficult jobs so that the US would land men on the moon, but their ultimate payment would be unemployment. The disturbing studies showed an alarming spontaneous increase in sudden deaths among the relatively young NASA workers. These deaths, believed to be caused by heart failure, were almost 50 percent more frequent than what would be expected for that age group. The sudden deaths peaked as the program was being phased out. Doctors found that the damage done to the hearts was different than that caused by heart attacks; the hearts seemed to have been thrown into "overdrive" by heightened physiological activity of the nervous system. Autopsies labeled these deaths as stress-related.

People have long ago seen a connection between mental stress and physical health – we commonly complain about our "stress headaches" and claim to have been "scared to death" or "worried sick." Yet this association was not always so. Traditionally, illness has been viewed as a biomedical phenomenon. Sickness is caused by germs, or by some internal biological problem. One became sick because of germs, bacteria and viruses, not because of pressure at the office, or as a response to the demands of our environment. Yet there are several illnesses, such as hypertension and heart disease, which do not fit into this concept of illness, diseases caused at least partially by our psychological responses to our environment.

What exactly is the connection between stress and physiological illness? This long asked question has been researched over the past century with several answers suggested. However before exploring them, we must define the terms they use.

STRESS

The concept of stress is quite difficult to clearly define. Eliot said in 1988, "we know the consequences of stress more precisely than we know the definition of it". General definitions of stress identify it as aversive pressure and as the unpleasant tension created by such pressure. Stress is a process, a sequence of events and feelings involving environmental and psychological events, interpretations of them, and finally, behavioral and physiological responses to

them. As Lazarus and Launier (1978) suggest, stress is a transaction between people and their environment.

EARLY VIEWS

The early researchers of stress viewed it in a physiological setting – physiological stressors causing physiological reactions. Claude Bernard (1813-1878) first introduced the concept of the internal environment of a cell. Bernard discovered that changes in the external environment can change the internal environment within the cells, first through changes in the circulating body fluids, followed in turn by appropriate alterations in intestinal fluid. Bernard concluded that all physiologic mechanisms, however varied, have one adaptive consequence: that of preserving the physiological processes which maintain the internal environment (Ramsey p.31-33).

American Walter B. Cannon (1871-1945) expanded on this idea by coining the term *homeostasis* as the “coordinated physiological processes which maintain most of the steady states of the organism” (Cannon, 1939a). He postulated that tissues and organs must be regulated and integrated with each other in such a way that any change in the internal environment is countered by an immediate reaction to counteract or minimize the change. This results in the maintenance of a steady state (homeostasis) within the tissues. For example, the sympathetic system of the PNS regulates cardiovascular performance to maintain homeostasis, especially in emergency reactions. While this constancy is not absolute even under normal conditions, if the stresses that attack the system are too great, the internal environment can be significantly, sometimes dangerously, altered (Ramsey, p. 34).

While Bernard and Cannon both give us the beginning idea of a physical “stressor” attacking the functioning body, and the body’s inherent need to maintain homeostasis at all times, their theories did not incorporate stress per se as a scientific concept or the relationship between stress and disease (Goldstein, p.9). Hans Selye concentrated on these issues in his biological model of stress.

THE RELATIONSHIP BETWEEN STRESS AND DISEASE

Selye systematically studied physiological stress. He observed the systematic physiological changes in rats in response to “stressors” – namely noxious toxins injected into their bloodstreams. From watching their consistent behavior Selye proposed a uniform type of “stress-response” -- the General Adaptation Syndrome (GAS), a nonspecific reaction to any noxious agent stressor. He defined stress as “the nonspecific response of the body to maintain homeostasis when disrupted by any demand (stressor) placed upon it” (1974). The GAS involved three set stages: the initial alarm reaction, the stage of resistance, and the stage of exhaustion. As a result of this physiological exhaustion, the animal becomes extremely susceptible to disease. Selye proposed that dysfunctional “diseases of adaptation” such as peptic ulcers and hypertension are apt to develop during the stage of exhaustion (Prokop et al.,

p.100-102). While Selye's stress theory is praised for providing a ready explanation for how any distressing experience can lead to virtually any disease, it also has its critics.

Firstly, his claim is rather circular; he claims that the GAS will be the unvarying response to every stressor, but at the same time, we cannot detect stress before the GAS occurs. It is also argued that his GAS is too simplistic and too nonspecific. Selye simplified that every stressor simply led to the GAS without acknowledging that different stressors may cause different types of specific patterns of physiological response. Mason (1975a) disputes Selye's doctrine of non-specificity – by pointing out that in response to different stressors, the activity of the pituitary-adrenocortical system that Selye studied could increase or decrease or remain unaffected.

Selye also must explain why when different people are exposed to the same stressors, only some become sick. He tries to do this by introducing the idea of "conditioning factors." He hypothesized that different people have different conditioning factors, which selectively enhance or inhibit the effects of specific stressors. These factors could be internal (i.e. hereditary predispositions, aging, or sex) or external (i.e. drugs and nutritional factors). Such conditioning could explain any deviation from the predicted pattern of stress-induced responses, and in fact the prevalent diathesis-stress model indeed uses a strikingly similar concept in its current definition of diathesis. However Selye's conditioning factors were not accepted due to their circularity as well – the presence of conditioning could only be detected once there was deviation from the normal response. (Goldstein p.13, 14)

A convincing model of stress and its interaction with disease must resolve Selye's problems. Its stressor must be able to be detected before it is reacted to; it must be specific enough to explain why different stressors cause different reactions in people or even no reactions in some. These are all necessary since, as Weiner explains, some scholars claim that stress has little power to explain disease. This is because inherently stressful situations (such as war) do not occur every day; because there are people who remain healthy even under the direst circumstances; and because no single disease results from any one stressor (Weiner p.97).

What we can take away from Selye's model is that stress is an unobservable condition that leads to adaptive compensatory responses and that an adrenal release of glucocorticoids often accompanies stress responses (Goldstein, p.16). This, combined with the previous concept of maintaining homeostasis, can give us the present theory of stress as a sort of "intervening variable" between a stimulus and a stimulus response. Goldstein (p.19) defines stress as "a condition where expectations do not match the current perceptions of the internal or external environment, and this discrepancy between what is observed or sensed and what is expected or programmed elicits patterned, compensatory responses."

THE ROLE OF COGNITIVE PERCEPTION

Goldstein adds in the most important aspect that Selye leaves out: the importance of psychological stresses and cognitive factors involved in the appraisal of stressors. It is not enough for the threat to simply exist. All current stress theories presume that in the absence of a *perception* or *sensation* of a threat to homeostasis, stress responses do not and *cannot* occur! The perceptions of the individual are the **main determinant** of the occurrence and the character of stress responses. This applies even if those responses are wrong and elicited by stimuli that actually present no direct challenge to homeostasis (Goldstein p.17).

Skinner (1985) defined stress as being a cerebral reaction of a particular individual to a stimulus event rather than being an inherent feature of the stressor itself. Levin and Ursin (1991) viewed stress as part of an adaptive biological system where a state of stress is created when a central processor registers an informational discrepancy. Lazarus and Launier (1978) and Kranz and Lazar (1987) proposed that psychological stress should be defined not solely in terms of environmental conditions or response variable but in terms of a "transaction" between the organism and the environment. All of these acknowledge and build off of the idea that there must be a psychological perception and evaluation of the stressor, which determines its impact.

We have many examples of correlational studies, which illustrate a correlation of this psychological element, the resulting stress, and the onset of illness and also of the release of stress and the resulting health. Studies of women with cancer have documented specific psychological variables that correlate with longer survival rates. Research on the psychological status of women with metastatic breast cancer revealed significantly higher levels of anxiety, hostility, and alienation among those who survived the longest (Derogatis, Abeloff, and Melisaratos, 1979). Similarly, Gree and Morris (1979) reported that a "fighting spirit" rather than a passive acceptance was positively correlated with longer survival with the disease. (Adesso et al., p.92)

A more recent study examining the relationship between psychological factors and the progression of breast cancer that revealed "neoplastic spread to be associated with a repressive personality style, reduced expression of affect, helplessness-hopelessness, chronic stress, and [increased] comforting day dreaming . . . (the) psychological variables accounted for 56% of the observed variance"(Jenesen, 1987). This body of research contributes to the clinical lore that passive, submissive, stoic, and emotionally inhibited patients fare the worst (Adesso et al., p.92).

In 1979 the National Cancer Institute conducted a study of survival time in advanced breast cancer patients. Biological prognostic factors shown to be associated with length of survival were recorded from patients' charts. In the category of living longer than, versus shorter than two years, people who lived longer were found to have had a more positive affect at baseline, significantly more joy, and less depression than did shorter survivors, but admittedly, also a longer physician's prognosis based on their physiological status. The joy also most probably overlapped with various biological factors such as host resilience,

vigor, and stamina. What is interesting to note is that the study equally evaluated the psychological element (joy) and the physiological factors (such as the disease free interval, DFI, and the number of metastatic sites) in affecting the biological outcome. This finding is consistent with recent data from an Alameda county study which found that cancer mortality data showed that well-being and happiness predicted reduced cancer incidence and even mortality from hormonally dependent tumors for women in that large population study (Reynolds and Kaplan, 1986, Adesso et al., p.93)

Also, growing correlational investigations have demonstrated the relationships between several clinical stressors and depressed immune system responses. Psychological distress such as anxiety and depression, was associated with decreased levels of natural killer cell activity among college students (Locke, et al 1984). Reports of medical students showed significant reductions in natural killer cell activity during their final exams where stress and anxiety were prevalent (Kiecolt-Glaser, Garner and colleagues, 1984). There were also reductions in natural killer cell activity were also positively correlated with the students' scores on the UCLA Loneliness Scale (Kiecolt-Glaser et al., 1984).

A proper stress model cannot be all biological – it must have other factors as well. It must consider the interaction of all factors, including behavioral, psychological, social, environmental, and biological in any attempt to understand a particular disorder. Cannon, Bernard, and Selye all failed to do this; Lazarus succeeds.

Lazarus's model discusses coping methods as a continuation of the idea stressing the importance of maintaining homeostasis, just as Selye had done, except that Lazarus incorporates a psychological element. Lazarus points out that Selye's definition of a stressor as a noxious agent is inadequate because it does not explain why a certain stimulus may be a stressor for one person but not for another. Lazarus's model of stress (1966,1984) includes biological and psychological variables to do so. He claims that a person "appraises" and evaluates a stressful situation to see whether it endangers, challenges, and threatens his well-being. This perception is his "primary appraisal." A person then conducts a "secondary appraisal" to evaluate his ability to cope with the stimulus. He defines "stress" as existing when a person appraises the environment as taxing or exceeding his coping-resources, thus endangering his *well being (homeostasis)*.

Coping strategies can be divided into problem-focused coping or emotion-focused coping. Problem-focussed coping attempts to alter or manage the stressful stimulus, for example, seeking medical care for a physical stressor. Emotion-focused coping attempts to alter or manage one's emotional responses to the stressful stimulus. Examples of this would be learning deep relaxation techniques or taking tranquilizers to reduce anxiety (Prokop et al., p.122)

Stress appraisals in the absence of effective (and thus reassuring) coping strategies result in high levels of stress, usually accompanied by negative emotions such as anxiety, depression, or anger. Sternbach (1966) has pointed out previously that not only can one react to objective real-life stress, but,

because of a person's personality or specific schema, one may misperceive ordinary situations as stressors and react to them with heightened physiological responses as well. According to Lazarus, because of the stressful reactions to them, these "ordinary events" now become actual stressful events as any other. As Weiner says, "not every stimulus is stressful: each person has his very special sensitivities."(p.96). These stressful encounters may influence several outcomes: functioning in work and social living, morale or life including changes in somatic health. (Prokop et al. p.103, 122)

The model also includes an examination of what constitutes a stressor in our daily lives. It was commonly held in the sixties that major life events such as marriage or loss of a job may be powerful social stressors in a person's life. Many clinical case studies have suggested that stressful life events often precede the onset of illness. However, more recently, several resources, including Lazarus have begun to study the role that minor life events called daily hassles may play in the onset of disease. Included in these hassles is misplacing or losing things, money concerns, planning meals and not getting enough sleep. The presence of these daily hassles has been shown to be a better predictor of future physical health than were major life events. (Lazarus et al., 1982) (Prokop et al., p.111-140)

The predominant problem with the model is that with it does not explain why some people can make the same appraisals and yet some will get sick and others will not. Weiner specifies further, "Even when a particular experience is identified as stressful, and it is certain that an individual or a group subjected to it has failed to cope, why should disease ensue? Certainly not everyone in the group develops a disease; those who do develop disease do not develop any particular kind – the specification of the disease seems to depend on additional factors (Weiner p. 96)".

THE DIATHESIS-STRESS MODEL

The diathesis –stress model (Levi, 1974) carries over Lazarus's concept of stress appraisal in determining the stressor's impact. However, it adds the component of a diathesis to explain the variance in contracting physiological illness. This model is a relatively simple statement of the ways in which psychosocial, environmental, genetic, and psychological elements should be considered in the description of disease. The diathesis-stress model takes into account a person's prior history as well as one's current state of health. The model focuses on the continuous interaction of three different factors: one's diathesis - the factors predisposing a person to illness (environmental, genetic, and physiological elements), that individual's psycho-social stimuli (stressors and how one reacts to them) and one's coping resources as well. These diatheses, similar to Selye's idea of "conditioning factors," are physiological predispositions, such as genetic background and psychological tendencies, such as common behavior and emotional reactions, which interact with a person's daily experiences to increase or decrease the probability of health problems. The study of the way they interact is crucial to providing health treatments to prevent

the onset of disease for individuals— if diatheses can't be changed, then perhaps one's coping resources can.

The diathesis-stress model, is a more comprehensive theory of disease because it explains why only some of the people exposed to a stressor will get sick, and also why only some of the people predisposed to a disease will contract it. Some people predisposed to a disease get it while others remain healthy for several reasons, including that "additional factors, such as psychological maturity and health, may play a role in maintaining physical health in some undisclosed manner. Another reason might be that single predisposing factors are never etiologically sufficient. They must be combined with one or several additional predisposing factors (Levi 1974)."

The diathesis can be broken down into two major factors: (1) individual response stereotype, a constitutional predisposition to respond in a particular way physiologically to various stimulation; and (2) inadequate homeostatic restraints, which can be caused by stress-induced breakdown, previous accident or infection, or genetic predisposition.

The stress portion of the model refers to the persistent exposure of the individual to stressful, activating situations. Its definition of stress is really the same as Lazarus's and does not dispute the idea that the impact a stressor will have often depends on how a person appraises it. Its inclusion of coping abilities as a third variable to take into account is really an extension of the "stress" variable. Like Lazarus it acknowledges that greater stress will occur when one feels that one's coping mechanisms are inadequate. It also emphasizes that situational determinants are very important and must be taken into account. For example, an individual exposed to an emotional stressor in a work situation may respond quite differently than if he or she were exposed to it at home. Socially accepted methods of dealing with stressors will differ from situation to situation, and thus the physiological consequences must be expected to differ as well.

A case study of the effects of stress on one man, Edward Polowski, showed a constant ulcer-gastrointestinal reaction with symptoms such as severe cramps and diarrhea occurring whenever he ate highly seasoned food, or encountered any type of stressful situation. He first recalled these reactions occurring whenever he had to make a public appearance such as in a school play. As a nine-year old child he experienced these symptoms when his strict new teacher punished him, and he experienced them again in high school every year during final examination period. During these exams Edward studied quite hard because he had done poorly on the previous exams, and did not listen to his mother's reassurances that he'd do just fine. He worked as a librarian as an adult and experienced these same symptoms when a new director was appointed to the library. After every incident, Edward's doctors attributed his problem to a chronic irritable colon and prescribed different medications that varied in effectiveness. Edward's mother attributed his problem to a "nervous stomach" which she was also troubled with (Leon, 1977).

We can see both the diathesis-stress model at work here, and how Edward's doctors overlooked it. Edward's irritable colon was his diathesis, an individual response stereotype predisposed physical condition, as we can see

that it was most probably inherited from his mother and by his natural physical response to eating spicy foods. His doctors ignored the timing of Edward's reactions, all of which coincided with stressful events in his life. Edward saw his available coping responses as inadequate when it came to his exams since the last time when he responded to the stress of exams by studying, he still did not do well. This knowledge overrode the social support of his mother's reassurances. Most other students taking the exams did not have the same physiological response as Edward. The diathesis-stress model explains the cause for this difference on three levels. Firstly, another student having to take the same tests may have seen them as a stressor but not experienced gastrointestinal cramping because he did not have the diathesis of a biological tendency towards colon irritation. Or, the other student may have coped with the stress differently, perhaps by responding to another's reassurance and remaining calm. Or, the student may not have seen the exams as stressful in the first place.

There is currently a widely held position which proposes a diathesis-stress formulation of schizophrenia because genetic factors have been proven an insufficient basis for developing the disorder (Zubin and Spring, 1977). It is assumed that some people genetically inherit a diathesis toward the development of schizophrenia, but schizophrenia will only actually develop in those predisposed individuals who are exposed to particular stressful experiences for which they have not developed adequate coping behaviors.

A study, such as the case study of Edward Polowsky, however, shows only a correlational relationship between a diathesis, stress, and coping-mechanisms, and +physiological symptoms. A study done in 1995 studied a causal relationship between the interaction of the three and tested the diathesis-stress model's ability to predict the onset of illness.

In order to test a diathesis-stress model of psychopathology, the authors examined the rates of current and past psychiatric disorders in 82 spouse caregivers of Alzheimer's disease (AD) patients and 86 demographically matched controls with a matching history of disorders. The controls however did not care-give for a sick spouse but rather was just married to an adult at least 60 years old. Here, the "diathesis" was the past history of psychiatric disease and the "stress" was clearly the long duration of time spent caring for a spouse with AD.

The experimenters predicted three things. Firstly, that caregivers with a psychiatric history prior to the care recipient's AD would receive more diagnoses of depressive or anxiety disorders after the onset of the AD than caregivers without a psychiatric history. Secondly, that controls with a history of psychiatric illness would be more likely to receive a diagnosis (relapse) during a time comparable to the time after the onset of the recipient's AD (here four years, the mean length of AD illness) than controls without a history. And lastly, it predicted that caregivers with a psychiatric history would be more likely to experience a depressive or anxiety disorder after the onset of care recipient's AD than controls with a psychiatric history. The first two predictions test the effect of a diathesis (psychiatric history) among people with identical stressors (each prediction

testing a different group of stressors). The third tests the impact of different stressors among people with identical diatheses.

The results proved all three predictions correct. We see the power of the diathesis because while 73% of caregivers had a recurrence of a disorder, only 7% without a history experienced a disorder. We sit it again when 30% of the controls with a past disorder experienced another incident of disorder and only 4% of those without a history of disorder experienced one.

But we also see the overwhelming power of the stressor because caregivers with a past disorder were more than twice as likely as controls with a past disorder (73% vs. 30%) to have a recurrence after the onset of care recipients' AD symptoms (or during a comparable period for controls). This result shows the overwhelming influence of the stressor, as both of these groups had identical diathesis.

However, caregivers without a past disorder were only about equally likely as controls without past disorders to develop a disorder after the onset of care recipients' AD or a comparable time period. This finding proves that the power of the stressor is not simply because of the stressor alone, (otherwise caregivers without a history of disease would have more diagnoses than controls) but rather because of the interaction of the stressor with the diathesis (Russo, Vitaliano, Brewer, Katon, and Becker).

This research provides conclusive evidence of the interaction of a diathesis and a stressor resulting in disease. The onset of this disease would not have occurred without either the diathesis or the stressor. Recently the diathesis-stress model has been extended to account for detrimental effects not only in physiological health but in mental health as well. There are several cognitive diathesis stress models which try and explain the onset and maintenance of depression in both adults and children. These posit that a diathesis of specific latent vulnerabilities interacts with stressors to produce depression.

The cognitive diathesis stress model of depression (Abramson, Metalsky and Alloy, 1989; Beck, 1967; Monroe and Simons, 1991) explains that negative cognitions are a vulnerability factor (diathesis) which, when interacting with negative life events (stress) results in the onset of depression. Two similar models which view negative cognitive thought as a diathesis are the learned helplessness model (Abramson, Seligman and Teasdale, 1978) and the hopelessness theory of depression (Abramson, Metalsky, and Alloy, 1988; Abrson et al., 1989).

Beck (1967,1976,1987) has hypothesized that the definition of these "negative cognitions" are negative views about the self, the world and the future and negative information-processing biases and distortions. He felt that stressful events attacked a personality vulnerability because people perceived these stressors through depressive schemas or dysfunctional attitudes, leading to automatic negative thoughts and depression.

However, while there is considerable evidence that cognitive attributional style is correlated with depression in adult and children (Peterson & Seligman, 1984; Sweeney, Anderson & Bailey, 1986; Asarnow & Bates, 1988), there are

few studies that prove a causal role of cognitions in the onset of depression or test the diathesis-stress model. The results of the tests that have been conducted have been inconclusive (Hilsman & Garber, p.370).

Hilsman and Garber were testing to see if negative cognitions about the self, such as low self-esteem and a poor self-concept, could be a vulnerability factor (diathesis) that combines with a stressor to further increase the onset of depression. They were also testing to see if the perception of control could act as a diathesis and interact with stressors to cause the onset of depression. According to Abramson's 1978 learned helplessness model of depression, a perceived lack of control over negative outcomes plays a role in the onset of helplessness depression.

Hilsman and Garber also tested different attributional styles. We can define attributional styles along two dimensions: either stable or unstable, and either global or specific. If one attributes a stressor to stable and global personality factors, it should lead to learned helplessness and hopelessness depression.

Hilsman and Garber tested whether attributional style or perceived lack of academic competence and control over academic achievement interacted with an academic stressor to predict negative affect and depressive symptoms in children, both immediately following the stressor, as well as several days later. Stressors were defined here as receiving unacceptable grades on a report card and negative reactions by parents to the bad grades.

The experiment hypothesized that an explanatory style (diathesis) that attributed the causes of negative life events to global, stable, and internal causes would interact with stressors to predict depressed affect and symptoms. It predicted that immediately after the grades were received, all of the children who experienced the negative event would report negative affect. It also hypothesized however, that the cognitive diathesis-stress interaction would produce more enduring depressive symptoms in the students with a more negative cognitive style, still present several days after the negative event occurred. It predicted similar findings with regard to cognitions about perceived academic competence and control over academic achievement.

Results showed that the grade stressor alone could predict immediate depressive reactions – the more bad grades received, the more depressed symptoms in the child, regardless of attribution. However, after five days, the grade stressor could no longer predict the children's behaviors, and only the reports of attribution styles given previous to receiving the grade stressors could predict them. Five days later, only children with global, stable, and internal attribution styles still had depressive symptoms. The diathesis-stress interactions indicated that students who reported a negative explanatory style or perceptions of lack of academic competence and control expressed more depressive symptoms after receiving unacceptable grades than did students without these negative cognitions. (Hilsman and Garber, p. 376)

The diathesis-stress model is clearly predominant in today's research world and seems to be the most comprehensive way of observing and predicting the interaction between different biological and psychosocial factors and stresses and

their role in the onset of disease. Originally a model for biological diseases, current studies have extended it successfully to predict and explain the onset of mental disease as well. This very extension itself is an indication of the coherence and unity between the workings of the mind and the body.

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Autism: An Evaluation of the Disorder

Jonathan Stern

In 1943, Dr. Leo Kanner, a psychiatrist at Johns Hopkins University, coined the term "autism" to refer to children who had severe social, communication, and behavioral problems. Since that time, the definition of autism has evolved to both include adults with the same disabilities as children and to exclude other disabilities with similar symptoms. These disabilities include Asperger Disorder, Fragile X Syndrome, Landau-Kleffner Syndrome, Rett's Disorder, Williams Syndrome, and Child Disintegrative Disorder. Along with Pervasive Developmental Disorder Not Otherwise Specified, these disorders compose the category of Pervasive Developmental Disorders which would be listed on the first axis of the DSM-IV.

Asperger Syndrome is characterized by concrete and literal thinking, obsession with certain topics, excellent memories, and eccentric tendencies. Individuals with this disability are high functioning and capable of holding jobs and living independently.

Fragile X Syndrome is a form of mental retardation. The long arm on the X chromosome is constricted which causes certain autistic-like behaviors in approximately 15% of the individuals. Abnormalities related to this disorder include delay in speech or language, hyperactivity, poor eye contact, and hand flapping.

People with Landau-Kleffner Syndrome exhibit behaviors such as social withdrawal, insistence on uniformity, and language problems. They are sometimes thought of as having "regressive autism" because they develop normally until sometime between the ages of three and seven, but subsequently lose their abilities to talk.

Rett's disorder affects mostly females. It is a degenerative disorder. It usually develops between the ages of a half year and one and a half years. The abnormalities include loss of speech, repetitive hand wringing, body rocking, and social withdrawal.

Williams Syndrome is characterized by developmental and language delays, sound sensitivity, attention deficits, and social problems. However, individuals with Williams Syndrome are quite sociable in contrast to other autistic-like syndromes.

Childhood Disintegrative Disorder is also similar to autism. However, in order to be diagnosed with this disorder, the child must exhibit normal development for the first two years of life. This disorder is sometimes referred to as "regressive autism." The loss of ability associated with autism must occur within two of the following areas: expressive or receptive language, social skills, bowel/ bladder control, play, or motor skills. There must also be two of the following: impairment in social interaction, impairment in communication, and stereotyped behavior.

All of these Pervasive Developmental Disorders, including autism, were

formerly listed on the second axis of the DSM-III-R. Recently, these disorders were placed on the first axis of the DSM-IV. The move to the first axis of the DSM-IV could be a result of the recognition that these symptoms vary and possibly improve.

According to the DSM-IV, a diagnosis of autism can only be made when a person exhibits problems in three areas. These are social interaction, communication, and stereotyped behaviors. Six symptoms within these areas are necessary to produce a diagnosis of autism. These must include social interaction deficits and one symptom from the communication and stereotyped pattern areas (APA, 1994).

The social interactions deficit group includes impairment in the use of multiple nonverbal behaviors, failure to develop age-appropriate peer relationships, lack of shared interests and accomplishments of others, and lack of social or emotional reciprocity (APA, 1994).

Those dysfunctions listed in the communication category are delay or lack of spoken language development, impairment in conversational skills, stereotyped or repetitive use of language, and lack of age-appropriate play. At least one of these symptoms is necessary for a diagnosis of autism (APA, 1994).

The behavior category contains a preoccupation with at least one stereotyped pattern of interest to an abnormal degree, adherence to nonfunctional routines, stereotyped and repetitive motor mannerisms, and preoccupation with parts of objects. In addition to six symptoms contained in the above categories, there must be a delay in social interaction, communication, or symbolic play (APA, 1994).

Additional dysfunctional behaviors are commonly noticed in autistics, but are not necessary for a diagnosis of autism. These include self-stimulatory behaviors that are repetitive including non goal-directed actions like rocking and hand flapping. Self-injury may also manifest itself in head banging and hand-biting. There are often also sleeping and eating disorders, poor eye contact, insensitivity to pain, hypo- or hyperactivity, and attention deficits associated with this disorder. Many autistic babies are either passive or overly agitated. Insistence on sameness is also frequently observed and any change in their routine may result in tantrums.

Statistics associated with autism vary greatly. Different studies show that anywhere between 1 in 1,000 to 5 in 10,000 live births in America are autistic births. Research has also shown that prevalence of autism depends on the country. The rate in Germany is 2 in 10,000 while in Japan it is 16 in 10,000. The disparities between these numbers may be due to genetic factors, environmental factors, and differing diagnostic criteria. Roughly, 20% of autistics have seizures during adolescence perhaps due to hormonal changes. About 10% of autistics have savant skills, and 70-75% are mentally retarded. In addition, approximately one third of autistic children develop normally until somewhere between the ages of one and a half and three years of age.

There are various theories associated with the causes for autism. They range from physiological theories to psychosocial theories. There is evidence that a virus may cause autism. Pertussis, rubella, and cytomegalovirus during the

mother's first trimester have been associated with this condition. In 1953, Mahler theorized that autism results from a symbiotic psychosis due to the "refrigerator mother" who shows a lack of sensitivity and coldness towards the child. Others oppose this notion, claim that autism is a result of smothering love of the mother towards the child.

Bauman, Kemper, and Arin (1995) have discovered differences in the brain structuring of autistics and normal individuals. They dissected the brains of autistic individuals and compared them to the autopsied brains of same sex and age non-autistic individuals. They found that the nerve cells in the limbic system of autistic brains were smaller and more numerous than normal. The amygdala and hippocampus were underdeveloped and appeared to be the same as those of a child. These brain structures are responsible for emotions, aggression, sensory input, and learning. Drs. Bauman and Kemper also found cerebral abnormalities. There was a deficiency of Perkinje cells and the vermal lobules VI and VII were smaller than normal.

Examination of brain activity has shown biochemical differences between autistic and normal individuals. Many autistic individuals have high levels of serotonin and cerebral spinal fluid, while others have significantly low levels. A decreased level of helper t-cells has also been associated with these biochemical abnormalities. This would indicate a dysfunctional immune system.

Sensory impairments are another problem for people with autism. They may be hyposensitive or hypersensitive, or may have sensory interference such as tinnitus. These sensitivities in hearing account for the discomfort that 40% of all autistic individuals feel when they are exposed to certain frequencies or sounds. Tactile sensitivity can also account for both the desire for pressure and the avoidance of body contact.

Rimland and Edelson (1995) studied the use of auditory integration training (AIT) in autistic individuals. They played music through headphones to eighteen individuals with autism and then dampened the frequencies to which the subjects were hypersensitive. After six trials over a three-month period, they concluded that AIT effected the behavior of subjects, yet it did not affect sensitivity to sound.

In order to conduct proper therapy for individuals with autism, there must be an understanding of the basic elements of this disorder. Theory of mind refers to one's inability to understand that others have different points of view. Many autistic individuals do not realize that others have unique perspectives of their own. They may have difficulty understanding that their peers also have thoughts and emotions and thus they may appear self-centered and uncaring. A savant, for example, may become upset when he poses a question to one who does not know the answer. Many autistic individuals also have "stimulus overselectivity" which is a focused attention span. Therefore, they focus on one aspect of an object and ignore the other aspects. For example, while they may notice that the color of a utensil is silver, they ignore its shape. Since attention is the first stage in processing information, failure to notice important aspects of objects or people may limit their ability to learn about their environment.

Teaching autistic individuals may be a difficult and frustrating task.

However, there are suggestions regarding the treatment of these disabilities. Many autistic individuals are visual thinkers. Therefore, objects can be used to demonstrate ideas when educating autistics. For example, in order to teach the concept "up," the teacher may lift a toy rocket off a desk and say "up." Teachers must also avoid long strings of verbal instructions. Sequence memory is a particular disability in individuals with autism. This is also due to their pictorial thinking. Instructors should also teach number concepts with visual aids. Number toys and blocks may greatly help autistic students understand mathematical concepts.

Many autistic individuals also have motor difficulties. Sometimes they cannot control their hands. To reduce frustration, it has been suggested to encourage typing on a computer. Speech may also be improved if a teacher instructs certain autistic individuals while they are swinging since eye contact may be better maintained while in motion. Attention can also be sustained to a greater degree when distractions are minimized. The reduction of dreaded sounds like buzzers and scraping chairs is important. In addition, the flickering of fluorescent lights bothers many. Therefore, these distractions should be removed.

Often, touch is the most reliable sense in adults. Autistic individuals can learn their daily schedules easier by touching an associated object a few minutes before an activity such as holding a spoon before lunch or a toy car before a car ride. Therefore, they may learn to use the item better or feel more comfortable in a specific experience.

Some verbal autistic individuals are unaware that speech is a form of communication. These individuals must learn that a word represents concrete objects. Furthermore, they must learn that specific words symbolize specific objects. Therefore, autistic children must be taught basic language skills.

A study performed in Spain in 1993 attempted to discover if scores on the Psychoeducational Profile (PEP) predict scores on the Adolescent and Adult Psychoeducational Profile (AAPEP) five years later (Martos & del Sol Fortea, 1993). The results showed that eye-hand integration on the PEP was the sole predictor of vocational skills, independent functioning, and vocational behavior on the AAPEP. Eye-hand integration is a skill which influences classifying, matching, counting, personal independence, following instructions, learning safety, and working on one's own. It also is a good predictor of the growth of autistic people with low mental ability. These results are significant in that they help instruct teachers how to get a head start on educating autistic children. This study also demonstrates other correlations between the PEP and AAPEP. Imitation predicted interpersonal behavior. Fine motor predicted leisure skills. However, cognitive performance did not predict functional communication (Martos & del Sol Fortea, 1993).

This study also discovered that only small proportions of autistic children even recover sufficiently to be socially and professionally independent. This minority benefits from social skills training and role-play techniques. Differences in development in autistic children could only be traced to IQ and the presence of language before five years of age. No other factor in their early life history was

relevant in predicting development.

Social, language, and behavioral improvements do occur in some older autistic individuals. Therefore, there must be reliable diagnostic instruments for older autistics. Although autistic children grow up to be autistic adults, there are instances where autism is not detected in childhood. According to Mesibov et al. (1989), the Childhood Autism Rating Scale (CARS) is a reliable test for autistic adults as long as the cut-off score is moved to 28 from 30. Another reliable test for autistics adults is the AAPEP. Both of these assessment tests were instituted in a treatment program for autistic adults. These two tests along with informal assessments such as interviews and observations comprise the TEACCH program. In 1979, the TEACCH program recognized that autism is a long-term disability and not limited to children. TEACCH is an acronym for Treatment and Education of Autistic and related Communications Handicapped Children. The philosophy of this program is based on the concept that the autistic individual's family plays a central role in the development of the individual. The role of the family depends on its resources. Furthermore, the family remains an integral component even as an autistic person enters vocational, residential, and community settings (Mesibov, 1994).

The TEACCH program uses a two-factor approach based on structural teaching. This program stresses the teaching of skills that the individual seems ready to learn and the manipulation of the environment in order to enable the person to use his strengths to compensate for areas of deficit. Structured teaching is used both as a teaching strategy and as a measure to prevent behavior problems (Schopler, Mesibov & Hearsey, 1995).

TEACCH communication programs are also individually tailored to fit the level of each autistic person (Keel, Mesibov & Woods, 1997). An autistic with less verbal ability must be taught to communicate basic needs and preferences. These methods, if tangible, must remain portable. For verbal individuals, the instruction is directed toward social aspects of communication. In work settings, it is essential that the autistic adult be able to communicate with the supervisor if he needs help or if there is a problem. Therefore, it is important that the autistic obtain these skills.

Recreationally, the goal is to have the patient independently choose free time activities. Free time activities are important because they safely occupy non-work time and are the basis of social interaction even among normal adults. Autistic people's inability to entertain themselves distinguishes them from adults with other developmental disabilities. In addition, jobs mandate that employees are not involved in destructive activity while on break. Autistics must therefore be taught to properly interact with others during their free time.

Stress reduction is also integral part of the TEACCH program. This is accomplished by giving the individuals choices as to what activities they want to do. Exercise, muscle relaxation, and deep breathing are also used to reduce stress. These are preventive measures and train the autistic individual how to deal with stress if it arises.

While TEACCH remains the statewide program in North Carolina used to treat autistic individuals, Bittersweet Farms has developed their own program

elsewhere in the United States. Bittersweet is a community setting developed in 1975 to meet the needs of autistic adults. Like TEACCH, its programs are individualized in the areas of behavioral, social, communicative, and vocational needs as well as in activities of self-care and daily living. In this program, autistic individuals work alongside staff performing tasks relevant to the upkeep of the farm.

Bittersweet Farms feels that it is important that autistic adults see the results of their actions. For example, adults working in a horticultural setting plant seeds, watch them grow, weed gardens, harvest vegetables, and cook food. They then eat the food that they prepared. In this manner, the activities appear constructive and meaningful to the autistic individual (Kay, 1990).

As mentioned above, it is very difficult for many autistic individuals to adapt to change. If changes are required, they are best done very gradually. For example, an autistic individual that swam every day during the summer had to be weaned away during the fall. At first, the individual was allowed to swim in the pool. Gradually, he was only allowed to wet his legs in the pool. As time went on, he wet less and less of his body and was eventually allowed only to change into his bathing suit. Finally, after these successive steps, he accepted doing a different activity. With other autistic individuals, it is easier to change their choice of activity.

Managing stereotypical behavior in autistics is done in a variety of ways. It can be ignored if there is no negative impact on others or the environment. Alternatively, it can be replaced with more acceptable behavior. Most useful is diverting the unwanted motor movements to identical motor movements that are productive. An adult who paces back and forth can be taught to push a lawnmower while pacing. One who flails his arms can wash windows. In other cases, the removal of a motor behavior is warranted. This can be accomplished by setting aside designated times for these rituals and subsequently reducing their time length. Sometimes, halting these behaviors is dangerous. In these cases, extreme care must be taken.

Social isolation is another problem in autistics. In Bittersweet Farms it is overcome through "reciprocal activities." Examples of these activities are delivering notes to people, retrieving mail, and passing out napkins and drinks at snack times. Adults with autism are not likely to talk to each other, but will respond when addressed. Therefore, during playtime table games that require talking are encouraged and made available. These reciprocal activities generate some interaction among peers.

Language teaching has long been an issue for instructors of autistic individuals. A study conducted in 1991 pitted the methods of analog teaching and natural teaching against each other (Elliott, Hall & Soper, 1991). The results were measured by retention and generalization in 23 adults with autism and severe to profound mental retardation. Conditions were manipulated against natural learning to prevent partiality.

Analog teaching is a method of language training, which is tested with discrete trials within a clinical setting. Reported advantages in this study were high response rates, consistent environment, reduction of competing stimuli, and

immediate reinforcement. Disadvantages were that the students remained dependent on prompts and were not taught learning strategies used by normal children (Elliott, Hall & Soper, 1991). This tends to segregate handicapped populations from normal individuals. This method did not combine proper language use with the appropriate materials for various tasks. Therefore, the probability of generalization was reduced.

Natural language teaching or "milieu training" stresses that language is an integral part of task performance. This training is done in daily living environments where the instructor functions as a model (Elliott, Hall & Soper, 1991). This type of training compensates for the disadvantages of analog language teaching. However, the disadvantage of this program is its expense.

The results of this study showed that autistic adults who were severely mentally retarded had greater generalization skills when analog teaching was followed by natural language teaching. Those with profound mental retardation performed better when they were instructed in the reverse manner. There was no significant difference in immediate learning or long-term retention. Even under disadvantageous conditions, natural language training is recommended for those with autism and mental retardation (Elliott, Hall & Soper, 1991).

Teaching life skills to adults with autism is very challenging because of a deficit in attention and language and because of other interfering behaviors. Care must be taken in dealing with these interfering behaviors since undue attention can positively reinforce them. Session termination is preferable because of its negative reinforcement quality.

Studies have shown that task analysis and prompting sequences are useful training methods in teaching life skills to adults with mental retardation. Smith and Belcher (1985) tried to determine whether these methods were reliable techniques for adults with autism. Their results demonstrated that this method produced gains in independent living in autistic subjects who were verbal, as well as some gains in nonverbal autistics. This study's success questions whether other training methods which are successful with mentally retarded adults, like edible reinforcement, may be helpful with autistic adults.

As mentioned, most autistic adults have some sort of destructive behaviors. These behaviors are incompatible with a work environment. A national survey in 1977 showed that 95% of all autistic adults were institutionalized. However, autistic behaviors can be modified for the workplace. Studies have shown that in certain cases an autistic adult can be just as productive as a normal worker if he is reinforced with praise. Training procedures of autistics can be productive, although the full time presence of a counselor may be necessary.

In this 1977 survey, the individual characteristics of job success were the attainment of proper communicative and interpersonal skills as well as the ability to either integrate or control ritualistic behaviors in the workplace. Job failure was characterized by lack of motivation, inability to make decisions, and lack of speed and flexibility. Job success was more likely if autistics were supported by their families. Success was also more likely if the task did not involve decision making, flexibility, or problem solving, and if the job's demands were similar to

those of the training program.

A full understanding of social deficits in autism is only possible once we know how autistic individuals perceive others. Mesibov and Stephens (1990) conducted a study to determine the popularity of autistic adults aged 18-45 years of age within a group of peers. They used a group of individuals who were participating in a Social Skills Program for the purpose of providing peer-related social experiences in a supportive atmosphere. This group met for six years in which they were taught social skills in two 10-15 week programs per year. Modeling, role-playing, and coaching were used to teach social skills through a cognitive behavioral approach. Attributes, which were thought to contribute to popularity, were measured. These included empathy, physical attractiveness, intelligence, athletic ability, and sense of humor. Autistic adults were able to identify all of these except empathy. Only attractiveness and sense of humor were positively correlated with popularity. Familiarity was also an important variable in social preferences. This reflects the security that autistic people normally respond to. These perceptions of popularity were different from those of the group leaders and objective observers. This research shows that autistic people view the world differently from their peers with reference to social interactions. Autistic individuals have many unique characteristics and traits. Furthermore, they view the world in a different perspective than normal individuals. Consequently, care and understanding must be carefully applied when dealing with these individuals.

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Parental Stress and Child Maladaptive Behavior: Is There a Connection?

Elisheva Langner

This article is based on a study done in conjunction with Craig Springer (New York University) and Omar Lyons (Brooklyn College) under the auspices of Howard D. Eisman, Ph.D. (Director of Psychology at Coney Island Hospital).

Throughout the past century many psychologists have tried to understand the interplay between dysfunctional child behaviors and parental problems. Several studies looked at parental functioning and children's behavior, in an attempt to link the two or find some causal relationship. In 1989, a study conducted by Zuravin explained that, up until moderate levels of depression, the degree of maternal depression was positively associated with aggressive behavior towards their children. Bjorkqvist and Osterman (1992) found that parental aggression is associated with child aggression. A study by Beck, Young, and Tarnowski (1990) found that clinically hyperactive children tend to be associated with mothers, who, in comparison with control mothers, are more frustrated, depressed, role restricted, and less competent. A 1993 study (Cuccaro, Holmes, and Wright) drew a relationship between total parental stress score on the Parental Stress Index (1983) and total behavior problems score on the Child Behavior Checklist (1983).

This study expands on previous research by examining *specific* parental stress variables in relation to child misbehavior. In addition, the present study includes parents with children from a non-clinical population, ranging in age from 4 to 12, where as previous studies have been limited to clinical and younger populations (Beck, Young, and Tarnowski, 1990; Cuccaro, Holmes, and Wright, 1993). Thorough examination of the relationship between parental stressors and child maladaptive behaviors lead to the hypothesis that specific variables of parental stress are associated with child behavior problems.

The participants in this study consisted of 75 parents of children, 4 to 12 years old, recruited from Coney Island Hospital's pediatric outpatient clinic. Parents were asked to complete the administered tests based on their experiences with one of their children. Subjects were from ethnically diverse backgrounds and there was an approximately equal distribution of boys and girls.

The parents were tested with two self-report measures. Achenbach's Child Behavior Checklist¹(CBCL) measures parental perceptions of child

¹The CBCL's test-retest reliability for a seven-day interval was found to be .87 for all competence scales and .89 for all problem scales (80 children 4-16 years old). For validity, significant associations were found with the Conners (1973) Parent Questionnaire and the Quay-Peterson (1983) Revised Behavior Problem Checklist. Criterion-related validity was found to be supported by the test's ability to distinguish clinical from non-clinical populations (as defined by the DSM criteria).

behavior. One hundred and eighteen items on this test focus on behavioral problems and 20 items on social competence. For each item mothers were asked to rate how closely a particular behavior resembles their child's behavior. The measure tests for eight syndromes: aggression, anxiousness/depression, attention problems, delinquency, social problems, somatic complaints, thought problems, and social withdrawal. The scales analyzed in this study were aggression and delinquency.

The Parental Stress Index²(PSI) is a multiple-choice test measuring parental stress. Parents respond to the questions on a five-point likert scale ranging from "strongly agree" to "strongly disagree". The PSI consists of 120 questions, with six categories in the child domain and seven in the parent domain. The present study excluded the child domain, as the CBCL is employed to measure parental perception of child behavior. The version of the PSI employed included 54 questions dealing with competence, isolation, attachment, health, role restriction, depression, and spouse.

The results of this study proved to be consistent with the stated hypothesis. Parental stress was found to be associated with child misconduct. Parents with a low sense of attachment to their children were significantly correlated with withdrawn children³. Parental depression was significantly correlated with child internality⁴, withdrawal⁵, and somatic complaints⁶. Feelings of parental competency were not found to be negatively correlated with any variable of child misconduct. Parental feelings of role restriction were significantly correlated with child aggression⁷, delinquency⁸, and externality⁹. Parental role restriction was also found to be positively correlated with children's withdrawal¹⁰ and internality¹¹.

² Burke (1978) tested the PSI's reliability by administering the test to 15 mothers who were visiting an outpatient clinic, on two occasions, one week apart. The correlation coefficient for the parent domain was found to be .71. Internal consistency was found to range from .70 to .84 (Abdin 1995). Aside from face validity, the PSI has been found to be highly correlated with other measures of parental stress. These include the Beck Depression Inventory, Family Adaptability and Cohesion Evaluation Scales (Faces II), Maternal Social Support Index, Parent Locus of Control, and Parenting Sense of Competence (Abdin 1995).

³ $r = .234, p = .036$

⁴ $r = .403, p = .000$

⁵ $r = .312, r = .007$

⁶ $r = .281, p = .015$

⁷ $r = .256, p = .027$

⁸ $r = .323, p = .005$

⁹ $r = .329, p = .004$

¹⁰ $r = .357, p = .001$

¹¹ $r = .343, p = .003$

In addition to these findings, unpredicted by the stated hypotheses, it was found that parents who feel isolated from other adults were positively correlated with internalizing¹², externalizing¹³, and withdrawn children¹⁴. Spousal support was negatively related to internality¹⁵, aggression¹⁶, and somatic complaints¹⁷. Total parental stress was found to be significantly correlated with internality¹⁸, externality¹⁹, and withdrawal²⁰.

This study illustrated that parental stress is highly correlated with maladaptive behaviors in children. These results indicate that the behaviors and emotions of both parents and children impact upon each other significantly. Three proposed theories offer explanations for this dynamic relationship.

One theory suggests that parents with high levels of stress foster maladaptive behaviors in their children. Kuczynski's 1984 study supports this theory, reporting that depressed mothers use more extreme discipline methods than non-depressed mothers do. A 1995 study found that when faced with high levels of stress and depression, mothers are more likely to be lax and neglectful toward their children (Ethier, Lacharite, Couture). In accordance with Bandura's modeling theory (1973), children may attain improper behaviors and coping skills by copying their parents' negative behavioral patterns.

A second possible explanation is that it is children's misbehavior that creates stressful situations for parents. It has been found that parents of ADHD children have higher levels of depression, marital discord, and adjustment problems compared to control parents (Fischer, 1990; Barkley, Karlsson, Pollard, and Murphy, 1995; Befer and Barkley, 1985). Mothers of children with low self-esteem, behavior conduct problems, and poor spelling achievement also tend to suffer from self-esteem problems and crowding stress (Bendell, Stone, Field, and Goldstein, 1989). Patterson (1982) found that mothers of aggressive children are likely to be more power assertive in response to their children's inappropriate behavior. In that same study, Patterson found that parents of withdrawn children tend to have self-blame for their child's inappropriate behavior. This data upholds the theory that children's misconduct may influence parental stress levels.

It is alternately suggested that a reciprocal relationship between parental stress and child behavior may exist, where these two variables are interdependent. Research by Abidin (1992) and Webster-Stratton (1990)

¹² $r = .281, p = .015$

¹³ $r = .248, p = .032$

¹⁴ $r = .284, p = .014$

¹⁵ $r = .320, p = .005$

¹⁶ $r = .235, p = .043$

¹⁷ $r = .272, p = .018$

¹⁸ $r = .342, p = .003$

¹⁹ $r = .254, p = .028$

²⁰ $r = .313, p = .006$

indicates that parental stress contributes to inept parenting; which causes child behavioral problems; which, in turn, elevates parental stress levels, generating the continuation of this vicious cycle.

Further study on this topic is suggested, as the magnitude of the relationship between parental stress and child behaviors is relatively low and much of the variance is unexplained. It is possible that other components play a role in this relationship, such as the actual interaction between parent and child (e.g. disciplinary style). Additionally, the measures used in this study relied on parents' view of their children's behavior. It is possible that parents were biased in their reporting, perceiving behavioral problems when there were none. Perhaps a more objective measure, such as observation of child behavior, would eliminate any partiality in the ratings. Longitudinal designs are also suggested to aid in establishing the causal factor in the relationship between parental stress and child maladaptive behavior.

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A Review of Obsessive Compulsive Disorder in Children and Its Treatment

Jay Kierman

One in two hundred people suffer from Obsessive Compulsive Disorder (OCD), which may severely disrupt social and vocational functioning. OCD is characterized by repetitive obsessions and/or compulsions that cause marked distress. Obsessions are repetitive intrusive thoughts that are understood as senseless by the person experiencing them. Similar to adults, children tend to ignore or suppress their obsessions which are also associated with their compulsions. Compulsions are characterized as observable incessant behaviors that act as neutralizers of the distressing obsessions. Obsessions almost always proceed compulsions. In general, a child will have both obsessions and compulsions, although some will have one or the other. Usually, obsessive compulsive people will have the insight and understanding that their obsessions and compulsions are senseless. This insight is not present in children.

A majority of the OCD symptoms entail washing and checking. Obsessions and compulsions may change over time. An example of a linked obsession and compulsion is the thought that one is evil because he has thought a sinful thought. The consequence of this obsession is to develop praying compulsions as a mental phenomenon that is observable to outsiders only as daydreaming.

There are several theoretical etiologies for the disease. Before the nineteenth century, the disorder was described as scrupulosity. Scrupulosity appeared in sixteenth century writings. Individuals with scruples thought that they had sinned when no sin had actually occurred. These people considered their actions to be tests from God or the devil's intervention in their lives. They repeatedly performed rituals as a means of purification. Treatment consisted of a skilled spiritual master helping the person withstand their urges to perform these rituals.

In the nineteenth century, Freud proposed a theory for the development of OCD. Freud considered OCD to be associated with pregenital sexual issues. He also felt that people with OCD had a possible genetic predisposition to this disorder. The cognitive behavioral theory of OCD states that anxiety is connected with compulsions associated with obsessions. Thus, compulsions are the acts that reduce the conditioned anxiety. The ritual performances develop through negative reinforcement. Finally, efforts in genetics and neuroimaging have provided further evidence to the pathophysiology of OCD. Genetic links have been found between Attention Deficit Hyperactivity Disorder, Tic Disorders, and OCD. Positron Emission Tomography has revealed increased metabolic activity in the caudate nuclei and lateral orbital-frontal cortex of the brain. In addition, the neurotransmitter, serotonin, appears to play an important role in the regulation of OCD. Still, much more research is needed in order to conclude that there is a biological basis for OCD.

Although OCD was not defined until the 20th century, the behaviors that comprise OCD have been recorded as far back as the 15th century. English writer and lexicographer, Samuel Johnson (1709-84), seems to have had this disorder. Johnson had to walk a certain amount of steps from a point before he could exit a room. When he felt that he did his walking compulsion incorrectly, he would go back and do it again until he did it correctly.

Freud was one of the first to talk about this disorder. He said that compulsions are connected to the toilet training phase of the young child. According to Freud, over time the person realizes that just like he was able to be in control by holding back his feces, so too can he control in his adult life. He fears losing control of his adult life as he did as a child, and therefore assumes a slew of rituals to gain control of his adult life. Freud considered all compulsions to arise out of the desire for perfection and the dread of losing control. Freud also likened compulsions to religious rituals. This reasoning is similar to the reason our ancestors engaged in magic rituals. They believed that they could control the climate in which they lived by engaging in this behavior.

Freud's classical psychoanalytical model for obsessive-compulsive disorder came from a distinguished "Rat Case" which he recounted in 1909. It involved the treatment of a young man tormented by obsessive thoughts about a rat eating his anus. Psychoanalysis seemed to be helpful in treating this patient.

Today, only part of Freud's theory is accepted. It is felt that compulsions are carried out in order to gain control of oneself. They are carried out as a response to a person's impulses and urges that he can not clearly identify. These urges carry with them an impending sense of danger. Yet, it is accepted that the person is acting out of a general fear rather than out of the fear associated with the toilet training phase of life. The fear could have evolved in any context and not just in this distinct stage of life. People with OCD perceive imminent danger around themselves and therefore seek to regulate everything. Thus, it is clear that compulsive people are acting out on their compulsions as a result of an unconscious dread. They are fearful of dealing with the real fear that overwhelms them. Compulsions hide this fear and renew their sense of helplessness.

It is estimated that there are two hundred school age children in the United States that suffer from OCD. These include a preponderance of boys exhibiting the disorder. The peak ages for childhood onset are five to eight years of age in boys and adolescence for girls. These children tend to have average to above average intelligence levels. For unclear reasons, OCD is more common in Caucasians than African American children. There is no data suggesting that this is a result of ethnicity or geographical region. Finally, there is usually a history of OCD or other psychiatric illnesses in OCD patient's immediate family.

A child may have contamination obsessions resulting in the urge to wash. Similarly, concerns about bodily harm may result in compulsive checking. In some cases, a child will perform compulsions that are totally unconnected to the obsession that he has. For example, a child who has an obsession about killing his parents may read a sentence backward over and over in an attempt to relieve his anxiety. When asked how this compulsion will prevent the parent's death, the child will come up with no reason and become very embarrassed.

One study conducted sought to describe the demography, symptomatology, and comorbidity of 31 children and adolescents with obsessive-compulsive disorder. The patients were assessed in a clinic for lifetime psychopathology using the Diagnostic Interview for Children and Adolescent. The Yale-Brown Obsessive Compulsive Scale (Y-BOCS) was used to classify obsessive-compulsive symptoms and rate the symptom severity. The Yale Children's Inventory and the Child Behavior Checklist was used to record the parent's information about demographic, medical, developmental, academic and behavioral information about the children. The results suggested a male-female ratio of approximately 3:2 with most patients' obsessions and compulsions changing over time. Symptom severity was influenced by the gender and age at onset of the disorder. In addition, more than 80% of the patients had other lifetime psychiatric diagnoses.

The question that arises regarding a child's compulsive activity is: Why is a particular behavior carried out as opposed to another one? The answer is simple. Every child's life experiences are different and, as a result the choices of actions are never-ending. More importantly, the choice of compulsions has to do with the noticeable success of those specific compulsions in the child's life.

The troubling nature of OCD symptoms differentiates OCD from other psychiatric disorders. OCD in particular, carries with it extremely overt distresses to a child. Obsessive-compulsive children come to doubt their own senses. Younger children get demoralized because their parents do not help them and have trouble helping them with their compulsion. They also struggle with their families who do not understand why the children "don't just stop" these behaviors.

The content of the rituals is rarely about neutral questions or behaviors. The most common preoccupations are dirt and germs, which results in washing and touching. Checking closed places such as closets, doors, drawers, appliances, and light switches are also common. In addition, thoughts about violent, sexual, and blasphemous behavior may be present.

Many of the disabling symptoms that an obsessive-compulsive patient feels, are about "will" and "knowledge." The child is not sure of himself and of the decisions that he makes. He is also unsure of his safety. One six-year old girl with severe compulsions to touch and count would run to her mother and say, "Mommy, Mommy, my other mind is back. Tell it how silly it is. Can you tell it to stop being so silly?" In no other disorder do patients so clearly state the importance and will of carrying out their strange acts or thoughts. It is clear that patients with OCD are really "prisoners in their own mind." Obsessive-compulsives know that they don't want to act out their compulsions, yet feel compelled to do so.

Fear is the major factor which prompts the child to act compulsively. It is a conflict within the psyche that is symbolized and represented by specific phenomena. For example, a child might arrange all his toys in his toy box so that all of the toys are facing forwards. In response to a fear of being confused the child may associate the order of his toys with his sanity and therefore carefully arrange them in a "correct" order. Thus, the real purpose of compulsive

behavior is to cope with unknown fears by carrying out specific, habitual activities.

Compulsives tend to keep their compulsions a secret. Often only close relatives of the patient with OCD will recognize the compulsive behaviors. Only the compulsive himself knows the rationale for his compulsive behaviors. All compulsions have great inner costs, and the person feels he is under the control of those compulsions. These compulsions are so compelling to the individual because the demands come from within the person as opposed to from without the person. Generally, the compulsions attack during the person's happiest moments. The attack occurs at that time because the person fears that he is undeserving of happiness. The compulsions bring momentary peace to the individual. The underlying psychological problem must therefore be addressed before the person can even begin to recover.

Unlike many other psychiatric disorders, OCD is basically identical in children and adults. The only difference is that adults are more aware of the absurdity of their thoughts and compulsions whereas the child is not. Children may have one specific obsession for months or years and then move on to another obsession. At the start of the illness, a child may have compulsions that display clear reactions to their obsessions. For example, a child might fold his clothes over and over thinking that after a certain amount of times he will be safe from harm. As the syndrome progresses, the obsessions and compulsions become more complex and the time consumed by the obsessive and compulsive behaviors may seriously disturb the home, school, and social relationships of the child. Children in general, are extremely aware that their symptoms are undesirable. They may actually fear that they are going crazy. Yet, because children are so secretive in regard to their compulsions, symptoms may persist for four or five months before anyone recognizes that something is wrong. As a result, it is especially important for school personnel to be on the look out for symptoms that might indicate OCD in a child.

A fear of AIDS is also associated with OCD. A study done by Fishman and Walsh outlines two case studies of obsessive compulsive disorder in prepubertal children. These two children had obsessive ruminations concerning the fear of AIDS. The study showed that the mean age of onset of the disorder in childhood and adolescence occurred after 10 years of age with peaks at ages 11 and 14. There have been suggestions that children who had overprotective and intrusive parents were at higher risk this disorder. Both of the children and parents in this study were described as perfectionists from an early age. It is also not uncommon for a child to have a trigger incident that causes OCD. In both cases in this study the compulsion and fear was triggered by specific events. In one case, the family had camped close to a hospital and the child became concerned about contaminated AIDS needles. In the other case, the child showed symptoms of OCD after listening to a health class about AIDS.

Yet, these two particular cases were uniquely different from most other childhood obsessions. Most childhood obsessions involve washing, checking, and counting rituals while these two cases involved AIDS related content. In Wagner and Sullivan's report (1991), they emphasize the importance of early

AIDS education in a hope of preventing the development of AIDS-related OCD in children. However, it has yet to be determined whether the AIDS scare will lead to an increase in AIDS-related incidence of OCD. In addition, long-term studies of symptoms in childhood will hopefully provide more information regarding symptom choice in relation to environmental stimuli as well as to the person's development stage.

In addition to a fear of AIDS, young children will also frequently report a fear of harm. This often manifests itself as a concern for one's own safety or for the safety of other family members. In many cases, these youth are afraid that they will inflict harm on others as opposed to encountering the harm themselves. Some fears of harm include fear of death by poisoning, germs, and sharp objects.

An especially common obsession in young boys is with numbers. Specific numbers are determined to be "safe" numbers, while others are "bad" numbers. An obsession with a particular number will result in the child having to repeat an action a given number of times, or of having to repeatedly count to a particular number.

In addition to counting obsessions, at some point in time, approximately 80% of children with OCD will experience the ritual of hand washing. They may wash for minutes or even hours per day. Some children will wash for a minimal amount of time, yet will engage in the act an incredible number of times each day. Washing compulsions in school settings may manifest themselves as subtle behaviors not easily recognized by school personnel. Classroom teachers need to be on the alert for students who frequently excuse themselves from class under the appearance of voiding. Another sign of excessive washing, is the presence of dry, red, chapped hands. While contamination fears frequently lead to washing, they may also lead to the opposite effect where a child's hair may be messy, teeth unbrushed, and clothing worn sloppily. The child may have a fear of these body parts and therefore refuse to touch them. A combination of excessive hand washing and sloppiness also exists in some children.

An additional compulsive behavior is the checking ritual which is precipitated by the fear of harming oneself or harming others. These behaviors include the continual checking of doors, light switches, water faucets, appliances, and other objects. These checking compulsions can create serious problems for the school age child. The child may check continuously to make sure he has all of his books and may therefore miss his school bus. He may check his homework assignments over and over to the point that they are submitted late. Checking homework assignments can lead the child to stay up very late at night, taking enormous amounts of time for the child to complete homework assignments.

Children with OCD will also perform repeating rituals. They may have to walk in to a room over and over in a certain manner, get up and down from their chair many times, and count certain numbers repeatedly until they "feel just right." In the classroom setting, the child may have an obsession with the need to know or remember, and this may lead to repetitive questioning. On written assignments, the child may erase or cross out words until holes are worn into the

paper. Note-taking may also be very difficult with the need to get every single word down on paper. All these rituals must be performed so that the child feels okay and safe at that moment.

Parents who think that their children might have OCD should refer their children to either a child psychiatrist or psychologist experienced in treating this specific disorder. An empathetic and caring clinician can help the child overcome his difficulties. Additionally, parents should also go for an interview. Parents can be helpful in describing the onset of the disorder, the specific symptoms that the child is experiencing, as well as the family history. Parents must also learn to deal properly with a child with OCD. First, a parent should know that the child is not intentionally acting out these behaviors, but rather that an "OCD Monster" has taken hold of the child. The parent must also learn to be empathetic to the difficulty that the child is experiencing.

Additionally, parents often feel manipulated by their child and his obsessive-compulsive behavior. A four step formula that parents could consider following is: (1) Acknowledge that an obsession is difficult for the child; (2) Label the request to participate in the ritual as the OCD; (3) Set limits with regard to your assistance with his rituals; (4) Propose an alternative or be creative in finding a way for the child to be unstuck. Obviously, it is also okay at times for parents to acquiesce to the child's request.

An important aspect in the recovery process is the understanding that there will inevitably be times where a specific ritual has been abandoned for some time and then suddenly returns. This sudden return of the problem can be disheartening to the child. He must be reminded that slips do happen, and it is crucial to remember that progress is often a process of two steps forward and one step back.

At this point in time, the cause of OCD in children is still uncertain. Some research indicates that a very rigid childhood family relationship may be a significant factor in determining who develops OCD. Others believe that there is a biological basis for OCD.

The psychoanalytic theories see the symptoms of OCD as symbolizing unconscious conflicts regarding social situations or a personality that does not welcome sexual and aggressive impulses. This theory holds that the compulsive behaviors serve to control the anxiety that originates from these impulses. The obsessions about dirt, fear, and hurting others lead psychoanalysts to maintain that the disorder has its origins in the anal-sadistic phase of the child's early development. At that stage, which occurs from about eight months to two years of age, bowel movement and urination supposedly produce pleasure. While the imposed discipline of toilet training is thought to produce aggressive impulses at the same time.

The learning theory has focused on a psychological cause for OCD. It maintains that the anxiety is a learned response to particular stimuli. A child who has OCD associates specific thoughts and objects with his anxiety. The child then performs an act such as checking a door or repeating numbers that are intended to relieve the anxiety. If the acts successfully relieve the anxiety, the child is more likely to perform them again and again, and eventually they will

become fixed. This theory provides an explanation for the obsessions and compulsions, and offers a principle whereby the OCD may be treated. This treatment centers on breaking the connection between the original stimulus and the anxiety that it provokes.

Yet, there is much evidence favoring the fact that OCD is a neuropsychiatric disorder. First, family genetic samples suggest that there may be alternate expressions of the same genes in Tourett's Syndrome as well as in OCD. Second, neuroimaging studies show that there are abnormalities in circuits linking basal ganglia to cortex in OCD subjects who use serotonin reuptake inhibitors for treatment. Finally, there is evidence of neurotransmitter and neuroendocrine abnormalities in childhood onset of OCD.

Recent investigations also link pregnancy and childbirth to OCD. Abnormalities in the CNS oxytocin metabolism negatively effect attachment. This is very intriguing, considering that oxytocin is responsible for uterine contractions, the milk let-down reflex, and orgasm which play a role in mediating attachment. Still, the biological basis for obsessive-compulsive disorder seems the most likely cause of the disease.

One study conducted suggests that parts of the brain such as the caudate nucleus, left anterior cingulate cortex, and bilateral orbitofrontal cortex play a role in the manifestation of OCD. The study shows that OCD may occur as a direct result of brain injury. The study reports a case study of a preadolescent who developed OCD after a traumatic brain injury. Increased cerebral blood flow was found in the right caudate nucleus, left anterior cingulate cortex, and bilateral orbitofrontal cortex. These findings support a neuroanatomical theory of OCD suggesting that a reverberating circuitry of increased glutaminergic neurotransmission takes place.

However, Goldstein (1952) suggests a psychological mechanism to explain the compulsive behavior after traumatic brain injury. He explains that the behavior is used as a protective mechanism in response to a catastrophic situation to new limitations resulting from brain damage. Yet, functional magnetic resonance imaging (MRI) shows that there is indeed activation in these brain areas which are not activated in normal subjects.

In addition to finding that there are biochemical abnormalities in OCD patients, another line of evidence suggests that these abnormalities may be inherited. This theory is based on evidence that the occurrence of OCD is found in more than one generation of a particular family. This has led to the suggestion that susceptibility to the disorder may be passed along genes from parents to children. The mechanism of their inheritance has yet to be proven.

Finally, environmental factors such as family experiences and stress, may determine whether a person predisposed to the disorder will actually get the disorder. Many children who live in abusive homes will develop obsessions and compulsions with the belief that these acts will help them survive the living horror that they are encountering.

Adolescents and children vary widely in the nature and impact of their OCD symptoms. Several instruments have been designed to assist in assessing the diagnosis of OCD in children. The Diagnostic Review for Children and

Adolescents is an interview that involves scrutinizing questions for OCD. It may be administered by school personnel or lay interviewers, and has standardized scoring guidelines. Some versions of the Schedule for Affective Disorders and Schizophrenia for School Age Children may also be used in characterizing OCD symptoms.

Several measures are extremely useful in the actual diagnosis of OCD. One test is called the Leyton Obsessional Inventory-Child Version. Patients are asked to sort a series of 44 question into two boxes labeled "Yes" and "No" depending on the presence or absence of symptoms. The questions ask about persistent, intrusive thoughts regarding cleanliness, checking rituals, order, repetition, fear of dangerous objects, and indecision.

The children's Yale-Brown Obsessive Compulsive Scale (Y-BOCS) is also useful in diagnosing OCD. The Y-BOCS is considered to be the number one choice for identifying and rating OCD symptoms. It consists of 10 items ranked in a 4-point scale for symptom severity. The test is comprehensive in describing a checklist of current and past thoughts and behaviors. Once the diagnosis is made, behavioral diaries are given out to children and their parents to monitor the frequency and severity of their obsessions and compulsions. A "subjective units of discomfort", otherwise known as a SUDS scale, can also be drawn in order to help decide behavioral treatment goals and assess ongoing treatment capabilities. Finally, the Clinical Global Impairment and NIMH Global Scales help determine what the needs are for ongoing or additional treatments.

An alternative appraisal is the genetic and neuropsychological assessment. Several trends have emerged in this area. The Weschler Intelligence Scale for Children-Revised reports lower Performance IQ in patients with OCD compared to comparable controls. Performance subtests are also conducted and timed. A child that checks and rechecks his answers on a test does not receive credit for corrected responses that exceed the time limit. Further, some children display cognitive rigidity or dependence. That is to say, that a child with OCD is likely to clarify test procedures in order to make the right decisions and then not change his answer later on if he thinks he has made a mistake. On the other hand, there is also a subgroup of children that answer the questions impulsively, possibly as a means of getting out of the OCD mindset.

An additional factor that remains is identifying OCD in a school setting. While it is very difficult, an observant teacher or school psychologist must be on the look out for subtle cues of the disorder. Children with OCD tend to have rigid ideas and have a morbid fear of making mistakes. They may be awfully slow in completing their work assignments. They may also ask to leave the classroom more often than their classmates in order to wash their hands or perform other rituals. As the illness progresses, academic achievement may suffer and the child may have difficult time concentrating.

When testing children suspected of having OCD, modifications must be made. Task performance time should be lengthened, the testing environment should be cleared of all distractions, and reassurance should be given to the child that it is inevitable that every child with OCD will miss some of the items on the test. After psychological testing has been done, the use of

neuropsychological testing may be helpful in expanding the results. It may suggest specific areas of brain dysfunction in children with OCD.

As with adults, cognitive-behavioral psychotherapy is the best treatment for OCD in children. It helps the child to internalize a strategy in resisting OCD with the understanding of the medical basis of the disorder. Treatment involves exposure and response prevention. It is based on the idea that OCD symptoms represent habitual learned responses that can be unlearned through intensive exposure of the feared stimulus, combined with strict prevention of acting out on the ritualistic compulsive behavior. The program encourages the child to gradually confront his fear and learn new suitable responses to the feared situations. Thus, if a child is afraid of dirt, he is exposed to dirt and is not allowed to use any sort of ritualistic behavior such as hand washing to relieve his anxiety. In children, exposure is generally implemented in a gradual fashion. One study suggests that behavior therapy with exposure and response prevention works well in a group context. This study claims that exposure and response prevention in a group context provides lasting benefit for most patients who comply with the treatment.

A detailed understanding of a child's OCD symptoms is an important factor in the successful treatment of this disease. In one review by Foe, Steketee, & Ozarow, 51% of subjects were symptom free and 39% moderately improved after a long time of exposure and prevention. At follow up, 76% were regarded as treatment successes. The therapy may not cure all, but surely makes it easier for the patient to manage with his OCD and anxiety.

An important job of the therapist is to train the parent to assist the child in practicing response prevention at home. Young people may have extensive difficulties in coping with the anxiety necessary for improvement. Therefore, the therapist must be patient and sensitive in reassuring the child in an appropriate manner. In general, children treated with the cognitive behavior therapy tend to stay well and do not relapse.

Parents must be also involved in the treatment of their children with OCD. Parents must be competent in helping their children in the exposure and response prevention needed to gain control of their OCD symptoms. Parents must also reward their children when they succeed in their practice. A parent might help the child develop a list of things that he would like the child to work on. By completing the exposure and response prevention homework, the child earns points that can be redeemed for rewards. Rewards differ from child to child, and the parent must evaluate what his child would consider a reward.

It has been suggested that Cognitive Behavioral Therapy (CBT), alone or in combination with pharmacotherapy, is an effective treatment for children and adolescents with this disorder. CBT presents a consistent relationship between the disorder, treatment, and specified outcome. However, empirical evidence regarding the efficacy of CBT in children remains poor, especially when contrasted to evidence favoring pharmacotherapy. In general, most published investigations fail to adequately define and assess inclusion and exclusion criteria. They do not apply reliable measures of treatment outcome nor do they assess the subjects treatment and post treatment. They fail to use distinct level

assessment and do not implement random assignments.

Much future research is needed in several areas. First, controlled trials comparing behavior therapy and medications as well as combined treatments are necessary to determine whether behavior therapy and medication are catalysts or cumulative in their effects on symptom reduction. Second, follow up studies will be necessary to evaluate the long term effects of CBT and whether booster CBT reduces the relapse rates in patients suspending medication treatment. Third, the contributions of specific treatment contents to symptom reduction must be examined. Fourth, a comparison in regard to the effectiveness of the individual and family based cognitive behavioral therapy treatment will need to be conducted. Fifth, OCD subtypes such as obsessional slowness and tic-like OCD must be researched. Sixth, other learning disabilities or family dysfunction need to be evaluated vis-à-vis their connection with behavioral treatment. Finally, the application of specific treatments to different populations would need to be evaluated.

Along with the cognitive behavioral interventions are the pharmacological interventions. The standard psychotropic medication, Lithium, and most tricyclic antidepressants are generally ineffective in the treatment of OCD. Highly potent serotonin reuptake inhibitors have proven to reduce OCD symptoms. Drugs such as Clomipramine, Fluoxetine, Sertraline, and Fluvoxamine reduce the OCD symptoms. These drugs block serotonin reuptake causing more serotonin to be available in the synaptic cleft thereby increasing activity in serotonergic neurons.

Clomipramine, otherwise known as Anafranil, has proven effective in the treatment of childhood OCD. Anafranil is a tricyclic antidepressant with some side effects. They include sedation, dry mouth, blurred vision, and constipation. Fluoxetine, otherwise known as Prozac has also been proven to be effective in the treatment of OCD. Side effects include irritability, insomnia, anorexia, and stomach pain, but usually subside within one week. In general, these medications take a considerable amount of time to have effects on the symptoms. A clinician should wait 12-16 weeks before deciding whether a patient with OCD is a non-responder to a specific medication.

One study, a follow up study of 54 obsessive compulsive children and adolescents stated that a majority of those in the study significantly improved after two years of Clomipramine treatment. This study suggests that most OCD patients can expect long-term improvements but may still exhibit some form of the OCD.

One particular study focused on the predictors of drug treatment response in OCD. The study examined 53 OCD patients who had been treated with Clomipramine or Fluoxetine for at least six months. The subjects were divided into two groups: responders and non-responders to treatment. Patients were evaluated using the Yale-Brown Obsessive Compulsive scale for Depression as well as the Hamilton Rating Scale for Anxiety. A comparison of patient characteristics and response to drug treatment was made. A response was defined as a 40% or greater decrease in the Y-BOCS total score and rating of "improved" or "very improved" on the Clinical Global Impressions scale within 16 weeks of treatment and sustained over the course of three consecutive

evaluations. The results indicated that 58.5% of patients responded to either of the medications. Non-responders had lower age at onset and a longer span of the disorder. They showed a higher frequency of washing rituals, schizotypal personality disorder, and previous hospitalizations. The findings submit that only certain types of OCD have a positive treatment response. The characteristics amenable to different modalities are of value in selecting patients for alternate treatments.

Another treatment for OCD is Eye Movement Desensitization and Reprocessing (EMDR). This is a fairly new therapeutic technique found to be useful in a wide range of anxiety disorders. The technique was developed by Dr. Francine Shapiro. During a typical EMDR session, the child is requested to recall as distinctly as possible, memories associated with a painful or traumatic experience. In OCD, this may be an experience of trauma, abuse, neglect, and loss or criticism in the need to be perfect and in control. The eye movements of EMDR work in similar ways that REM sleep may unlock unconscious forces in the mind. EMDR seems to unlock the nervous system and let the brain process the experiences that led to the negative beliefs about oneself. Once new positive beliefs are integrated into the child the loosening of the hold of compulsions takes place. EMDR integrates well with pharmacological treatment as well as behavioral treatment using exposure and response prevention. Although EMDR has proven to be an effective treatment, at this point in time the procedure has not yet been proven scientifically.

It is important to understand that EMDR is based on the principle that the mind and body can heal itself once any blocked areas are unblocked. Children often get into past issues and events that underline their OCD symptoms. In some cases, though, obsessions are paired with compulsions that defy justification.

Family and group treatment may also be favorable and useful in the overall treatment of OCD. This treatment provides education and support to the family of an obsessive-compulsive. Many families join support groups which disseminate new research and provide support and mutual encouragement in the challenge of dealing with an obsessive-compulsive child. One of the most important aspects for parents to remember is that the parents and child are both working to fight against the disorder.

In conclusion, OCD is a very distressing disease for children. It takes up large amounts of time and energy and leaves children feeling very unhappy and frustrated. Research is currently underway looking to discover the different facets of OCD. One part of the research suggests that there is some link between OCD and Tourett's disorder. A study was conducted to test whether two hypotheses were indeed true. The first hypothesis was that in OCD without Tourett's, the repetitive behaviors preceded intellectual phenomena as well as autonomic anxiety, but not sensory phenomena. The second hypothesis was that in Tourett's without comorbid OCD, the repetitive behaviors preceded with sensory phenomena and not intellectual phenomena and autonomic anxiety. Fifteen OCD patients without tics and seventeen Tourett's patients without OCD were interviewed, assessed, and questioned. The results showed that all of the OCD

patients had some cognition before their intentional repetitive behaviors, whereas only 2 patients reported cognitions before their compulsive behaviors. In contrast, all of the Tourett's patients reported sensory phenomena before their repetitive behaviors and none of the OCD patients reported these sensations. It was noted that 13 of the 17 OCD patients reported some autonomic anxiety preceding their repetitive behaviors, while none of the Tourett's patients experiences such symptoms. Thus, evidence suggests that there are several clinical factors in the characterization of OCD and Tourett's that help in the differentiation of the two distinct disorders.

Research is underway examining the different parts of the brain thought to be associated with OCD. It is hoped that further research will give light to the intricacies of OCD in children and help them manage this difficult disorder in a better way.

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A Study of the Secular and Ultra-orthodox School Systems: A Statistical Analysis

Michelle Waldman

Yoram Dembo, Iris Levin, and Robert S. Siegler conducted a study titled "A Comparison of the Geometric Reasoning of Students Attending Israeli Ultra-orthodox and Mainstream Schools." The study explored the question of the effects of (particular types of) schooling on the prevalence of geometric misconceptions. They attempted to gain insight into this question by focusing on the conception of the relationship between area and perimeter of students attending Israeli ultra-orthodox schools and those attending Israeli mainstream schools. This particular misconception was chosen for the study because it is found consistently in students and adults, despite their education.

The choice of the group tested in this study is extremely significant and appropriate. The *sample populations* chosen for this study were from a middle class secular school in a community that is representative of the average Israeli community and an ultra-orthodox school representative of the average ultra-orthodox academic institution. These populations were chosen because they both value education and are conscientious hard workers but have completely different methods and focuses in attaining this value. In the ultra-orthodox schools, students focus on Judaic texts and receive a very limited secular studies education, excluding math beyond arithmetic. Students learn both by rote recitation and by comprehension, but comprehension by reconstructing, comparing, and integrating interpretations of texts is emphasized. Students must apply a set of formal and logical methodological rules in order to understand texts. The method of study is unique; students begin learning in a teacher/classroom setting and progress to self-directed learning in pairs. This form of education stresses reaching an understanding. On the other hand, in mainstream schools, a wide range of science and math is taught (including geometry); the secular education is in a formal teacher/class situation, almost exclusively with an emphasis on speed and accuracy. The populations were chosen from Israel because it contains these unique communities and because its students have received very high marks in standardized international math tests, comparable to the scores of industrialized countries. The sample groups were composed of sixty ultra-orthodox and sixty secular twelve to fourteen year-old subjects and sixty ultra-orthodox and sixty secular sixteen to eighteen year-old subjects.

This study was very thorough in terms of researching many factors that would elucidate the topic. It, therefore, included many *variables*:

1. schooling: different curriculums, different instruction, different school emphasis

2. misconceptions based on faulty thinking processes: experience with the physical world, language input, and logic of conservation
3. presentation of a method to overcome the pathway: explaining the differences between formulas, the logic of limiting cases, and visual perception
4. age of the subject
5. amount of time of subjects' deliberation before responding.

The *observational procedure* of five parts was administered on a one-on-one basis in a constant order:

a) pretest problems: subject was presented with a shape that transformed into a different form and then was asked if the area is affected by this change and why

b) training: subjects were broken up into three groups- concrete evidence training, logic of limits training, and no training. For the concrete evidence training group, the geometrical concept was demonstrated in a hands-on presentation; for the logic of limits training group, the geometrical concept was explained verbally in a logical manner; and for the no training group, no training was given.

c) posttest problems of four types- immediate questions (half of which were based on the training), transfer problems (applying the trained conception to a different example), a general conclusion question, and a "largest shape" question (for which the subject had to deduce which shape was geometrically largest)

d) questions that assessed the subject's knowledge of formulas

e) a vocabulary test that has indicated high positive correlation to general I.Q.

All tests were videotaped and the duration of each was measured.

In order to assess the strength of the variables and observational procedure of a study and report, the following questions must be asked: Were all of the variables actually explored in the study? Were the methods used to explore them appropriate? Furthermore, was the procedure economical? Did each aspect add to the sought data?

The effect of **schooling** (variable 1) was investigated by the choice of two populations with differing schooling methods and the testing of subjects' knowledge of formulas (part d of the experiment). The **prevalence** of the misconceptions within each community, a premise on which the study is based, was investigated by the pretest of the study (a). The **source** of misconceptions (2) was investigated by studying whether these misconceptions could be avoided by appropriate teaching methods (b) and the subject's aptitude in specific aspects of the misconception (c). The effect of proper training on overcoming misconception pathways (2) was explored by a training session (b) and questions that followed that investigated the subject's ability to apply this effect to other material and deeper analysis (d). The group that received no training served as a constant. The effect of **age** (4) was investigated by choosing sample groups of two different ages. The relationship of the subjects' general I.Q. to their performance in this experiment was investigated by the vocabulary test administered (e). The effect of **time** was investigated by measuring the recordings of the studies (5).

The setup of the study was overall very thorough and revealing. It was appropriate to the proposed question as well, yet there were some weaknesses. A problem concerning the choice of the older sample group is that the ultra-orthodox group was representative of the average classes in the average ultra-orthodox school (the middle 50%) whereas the regular mainstream group was representative of the top half of students (the fiftieth to seventy-fifth percentile). The comparison is therefore unjust. The researchers further broke down the mainstream older students into those in the regular track and those in the advanced track. The significance of this division is not clearly explained in the report and is not included among the variables. If the purpose of this group was to distinguish the effects of the advanced students' quality of *education* in comparison to the average math class's quality of *education*, an important confounding variable was overlooked. Namely, the native geometric abilities of the advanced group obscure the otherwise more direct relationship between their unique education and their level of knowledge.

Regarding the comparison of curriculums and methodology, it is perhaps not an appropriate comparison because the subject matter of the ultra-orthodox texts is very extensive. In fact, it is believed that *everything* is contained within these texts. For example, while discussing the required measurements for a kosher tent on the holiday of Succot (Tabernacles), it is possible that a geometrical conception was employed. It is false to assume, perhaps, that the ultra-orthodox have never encountered these specific concepts from a formal academic perspective and is therefore inaccurate to exclude the content of the text of study as a variable. In addition, the ultra-orthodox are an insular community. Hebrew, the language in which the experimental procedure was administered, is not their mother tongue and they usually have very limited interaction with the secular Jews who administer the test. So, the ultra-orthodox were possibly at a slight disadvantage with respect to the comfort level during testing. Also, reliability of their performance on a Hebrew vocabulary test as an I.Q. indicator is questionable.

Despite the minor weaknesses, the *results* derived from this experiment were very convincing. The study showed that the knowledge of formulas was indeed much more prevalent amongst the secular students as opposed to the ultra-orthodox. Yet, in the older group, the order of achievement was the advanced mainstream, the ultra-orthodox, and lastly, the regular mainstream. Performance on the pretest indicated only a very nominal effect of schooling on the frequency of correct judgements. Results of the post-training test, taking into account the factors of age, schooling, and training, show that concrete evidence training is more effective than logic of limits training, which is more effective than no training. Older students were able to learn more from the training session. The ultra-orthodox spent more time completing the experiment than did mainstream students. The most convincing evidence that general logical analytical cognitive training is more effective than an explicit education in geometry, according to the researchers, is that the younger ultra-orthodox performed better on the posttest, general conclusion question, and the largest shape question than did the younger mainstream group. However, the older

advanced secular preformed better than the older ultra-orthodox, perhaps signifying that the greatest determinant of geometric understanding is innate I.Q.

The implications of this study are tremendous. The type of formal geometric education to which secular students are exposed, is less effective in transmitting to the students' proper geometric conception than the general teaching method of an ultra-orthodox education that does not ostensibly teach geometry! This knowledge can be *applied* to developing secular education by adopting effective methodologies and approaches of the ultra-orthodox method. Further research may be done to determine which specific methods are successful and which are merely dependent on the content of the teaching that leads to improved overall performance.

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On Psychology Toward the Millenium

Marcel Isaac Perlman, Ph.D.

On a dark and dreary day in late fall, a man and his large brown dog walk into a pub in Dublin. "Barkeep, I'll wager you a pint that my dog can sing." Without looking up the barkeep says, "Be gone with you. No dog can sing." "Well, mine can, so will you wager?" This goes back and forth a few times and finally one of the men at the bar shouts to the publican, "Bet him a pint, why don't you, and maybe he'll go away." The wager is struck and the man turns to the dog that is lying on the floor and says, "Sing, you large and good-for-nothing beast." The dog gets up, turns to the bar, points his muzzle skyward and sings...off-key and screechily, but one can hear the tune "Tommie Boy." The barkeep complains, "That was awful and terrible," and truly it was, but as one of the men at the bar proclaims, "It's not how well the dog sings, but rather that he sings at all!! Give the man his pint and give the dog another."

In that story we see the mystery of Psychology. The wonder of this field is not that it works so marvelously well, but rather that it works at all. And it does. But what does it do? It endeavors to search for the true cause of our behavior, a search to understand the human mind.

Psychology has a genealogy with which to truly reckon, a cast of characters to rival any discipline known to man—Socrates, Plato, Descartes, Spinoza, Pavlov, Freud, James, Watson, Piaget, Wundt, Maslow, Perls, and Skinner. Along with many others, they came to believe that we humans could and would examine, understand, and ultimately guide or control our behavior. They felt that in doing so we would become creatures who understood ourselves as no other species did.

On a personal note, when I entered his field in the latter part of the 1950's, it was relatively clear to me that I wanted to be both an observer and a participant in the "human experience." I knew that my role was not to dissect or measure, not to count or enumerate. I had no love affair with numbers. I had no burning desire to be a surgeon, pathologist, veterinarian, engineer or statistician. Hours in a lab or at a calculator (or these days in front of a computer) were not stuff of dreams for me. And yet I wanted to **know**. And more than simply to **know**, I wanted to be able to **use** that knowledge to good effect.

What did that mean? Where could I take those wants and desires? Surely there was a place for someone who was not a researcher or a scientist but was a searcher and questioner...I could become a **clinician**. And in time a teaching clinician. This was not, however, an obvious or clear choice given the history of clinical psychology in this culture.

There has always been a deep and rancorous relationship between academic psychology and applied psychology. Academics often view those in the applied areas as something of a "lesser breed." At the 1917 convention of the APA, a small group feeling ignored and not well deserved, decided to form their own organization, the AACP, the American Association of Clinical Psychologists. Slowly it grew and the APA took note and took action.

Reluctantly, the APA formed a section on clinical psychology and revised its bylaws to read that its (APA's) purpose was now to advance psychology both as a science and as a *profession*. The AACP dissolved. As the numbers of clinical and applied psychologists grew, the APA further adjusted its position. And yet, a genuine melding of interests, values, and attitudes seems elusive even today. In 1988 a group of some of the leading academics in psychology met in a hotel room in Atlanta to form a new organization, the APS, the American Psychological Society. This organization was to serve the needs of academics and science-oriented psychologists. In one year the APS had over 6500 members and by 1992 more than 13,000 psychologists had joined. Many having resigned their APA memberships while others kept joint memberships. This was a clear statement that many felt that the APA had gone too far the other way in yielding to the demands of the clinicians and applied psychologists. Whether or not that view was accurate, what was clear was that the breach had not been healed.

So one might ask...where are we today? What is a psychologist? Who is a psychologist? As a generalization we might reply that a psychologist is someone with a special knowledge of human nature and the human mind, and most often someone who treats the disturbed and dysfunctional. This is a generalization and a misleading, limited and dangerous one, indeed!

Psychology today is a broad and rich undertaking of occupations, some of which have little or nothing to do with human behavior, not the understanding of, nor the treatment of the human condition. This range is dazzling and bewildering. It runs the gamut to include a tall and gaunt middle-aged woman folding herself awkwardly onto the floor of a treatment room. She holds and cradles a hollow-eyed and rigid eight-year-old and gently rocks him. He visibly relaxes and focuses, and after several weeks, smiles at her for the first time. This range further extends to a pair of cold researchers standing thirty or forty yards apart throwing crumbs into a pond, toward a group of ducks. At first glance, a charming bucolic scene, but in reality a carefully crafted project in which one throws his crumbs at the rate of every five seconds and the other every ten. After a few days of this pattern, twice as many ducks cluster in front of the five-second thrower. Several days later the pattern is changed so that the ten-second thrower casts pieces twice as large. At first there is no change in the size of the clusters, but in less than five minutes the ducks rearrange themselves so that they are evenly divided, evidence that ducks' foraging behavior is able to evaluate both time and quantity. There are those we call psychologists at work behind the bars of penal institutions, observing the effects of population density, and working behind the bars of pubs and taverns observing the "dating and mating" behavior of "singles." There are those who measure phenomenon out to ten decimal places and those who observe four ton whales from a distance of a thousand yards. All are psychologists.

We often hear of psychology spoken of as a "soft science." Most frequently this is said pejoratively, often by one psychologist when speaking about the work of another. Approximately a century ago, William James said of his field that it was not yet a science but only "the hope of a science." He described it thusly:

A string of facts; a little gossip and wrangle about opinions; a little classification and generalization on the mere descriptive level; a strong prejudice that we have the states of mind, and that our brain conditions them; but not a single law in the sense in which physics shows us laws, not a single proposition from which physics shows us laws, not a single proposition from which any consequence can causally be deduced.

There is little doubt that in the succeeding hundred years we have come a long, long way in addressing Dr. James' concerns. Today, psychology clearly is a science, no longer merely the hope of a science, *however*, a science legitimately different from James' beloved physics. It is a science that on some levels can match precision with any of the "*hard sciences*," but a science that retains as well the desire and ability to say without shame, "*I feel*" or "*I believe*." It is a science which can accept that standing out on the East African veldt and "merely" watching a herd of elephants can be equally as valuable as measuring one of their whiskers with a micrometer. The illusion of precision out to ten decimal places should not rule out the value of the *art of science*. Both have a valid and needed place in this thing we call psychology.

As we speed toward the next century (in a sense, the second century of this discipline's life), it would appear that a clearer détente between the *hard* and the *soft* sides of our field needs to be developed. It is evident that both have a real and valid role to play in arriving at what we all seem to agree is the ultimate goal. That is, a clearer and deeper understanding of who we are...what we are...how we are...and perhaps even a sense of why we are.

Modern technology has given us the means to create a synergy between the empirical and the intuitive, which if used properly, can lead to the most exciting and enlightening of times. It would appear that Freud is not "dead" after all but has been hibernating like "Sleeping Beauty" waiting for the kiss that will wake him...the kiss of the EEG, the CAT scan, the MRI, and cerebral thermography. All would investigate, measure, and perhaps validate what the "Bearded Wonder of Vienna," the neurologist manqué, knew intuitively over a century ago. The belly and brain wonderfully coexist in the human...why should they not coexist equally well in the science that strives to study the human?

Is Recovery from Autism Possible? A Case Study

Rena Loew

Recovery, or even significant improvement, is the dream of all parents of an autistic child for their son or daughter. They would feel certain that their child understands the extent of their love. They would know what their child felt or needed or wanted. Their child could attend a regular school and grow up to be an independent, healthy adult. These approximate the experiences of Temple Grandin's parents when she overcame her autism to the point that she earned a PhD in animal science.

Ratey, Grandin, and Miller (1992) published a case study of Grandin's life, which although it is only a single example of such significant success, provides much insight into autism and possible treatment. Due to her marked improvement, Grandin was able to describe her own experiences and feelings as an autistic child. Certain maladaptive behaviors witnessed in Grandin as well as many other autistic people might be seen as reactions to these feelings or experiences.

Grandin remembers feeling a constant state of hyperarousal. Both exterior and interior "noise" often overwhelmed her. Grandin and many other autistic people who feel they are being bombarded with too much input shut out their surroundings and withdraw into themselves. Other times this hyperarousal had almost the opposite effect. Grandin's confusion would escalate until her anxiety and frustration caused an aggression release.

Grandin relates a feeling of hypersensitivity as well. Although she craved comfort in the arms of her mother, she could not bear the "tidal wave of sensation." Yet she also searched for ways to subject herself to firmer pressure such as having her sister sit on top of her with a few pillows in between them. This type of behavior is reported in many other autistic patients as well. It appears that pressure often helps to partially alleviate the paradoxical dilemma of hypersensitivity.

Similarly, Grandin discovered a way to compensate for her inabilities in abstract thinking. She used her extraordinary visual creativity to literally see the connections between informative sources. By posting notecards on a board, she could rearrange the information spatially. She also made comparisons between social relationships and visual images to facilitate her understanding in that area. Later in life, she was able to understand her limitations and abilities well enough to describe them and use them to her advantage.

Ratey et al. (1992) claim that her success later in life would not have been possible if not for a number of key advantages bestowed upon her by her parents in early childhood. Many of these factors were confirmed as advantageous in a limited number of other studies. Probably the most important aspect of her treatment was individual attention in a highly structured environment. At different points in her life, Grandin had the complete attention of a governess, a speech therapist, her mother, and a variety of teachers and counselors in a small

boarding school. During these times, as opposed to the periods when she was mainstreamed in a regular school, Grandin made great progress. These individuals provided a very structured and focused environment in which to learn, allowing much less distraction. Clark and Rutter's (1981) experiment supports the notion that individual attention and structure help autistic people make great strides. Using four variations of more or less task structure and more or fewer interpersonal demands, they showed that these variables positively affected social response and productive behavior.

According to the case study on Grandin (Ratey et al. 1992), reinforcement techniques were a helpful aspect of behavioral modification. Grandin's mother would read her parts of books, leaving out the rest for her daughter to read aloud to her if Grandin wanted to know the end of the story. In boarding school, when her aggressive behavior got out of hand, her horseback riding privileges were taken away. Since this was so important to Grandin, she soon started slowly improving. Fair consequences were attached to other behaviors as well, prompting improvement in various areas. Reinforcement was also a part of the successful behavioral intervention technique used in the work of Lovaas (1987). In addition, Perry, Cohen, and DeCarlo successfully used his technique, including the reinforcement aspects, with two young siblings in a 1995 study.

Many studies argue that early intervention for autistic children is essential, though others dispute this claim. Grandin's early informal treatment was very valuable in her development (Ratey et al. 1992). The subjects of Lovaas' experiment (1987) were preschoolers, and Lovaas promotes intervention at this young age. Once again, he is supported by the evidence of two children under the age of three (Perry et al. 1995). Behavior modification was successful in the above two studies at early ages. However, no control group of older patients was included. Therefore, no conclusive argument can be made for the benefits of early intervention. Furthermore, a number of other studies point in the opposite direction. Clark and Rutter (1981) produced more social response and more productive behavior through individual attention and increased task structure in eight to fifteen year olds. Additionally, a combination of drug treatment and behavior modification had positive effects in a twenty-five year old autistic person (Hittner 1994).

Later in life, at the age of thirty-four, Grandin began taking tricyclic imipramine. The drug relieved many of her maladaptive symptoms, including alleviating some of her hypersomatic sensitivity, improving social skills and understanding, and even straightening her posture. James B. Hittner (1994) published another case study in which imipramine was used effectively on an autistic person. Once again combined with behavior modification therapy, the drug helped an adult autistic male significantly reduce aggressive behavior directed at himself and others.

The lack of evidence for treatment with imipramine highlights a more general research problem. Although this drug seems to have been very successful for these two patients, more research and a controlled experiment must be done. Case studies alone are in danger of being biased and are

certainly not controlled for other variables. Perhaps something else happened at the age of thirty-four that resulted in Grandin's dramatic improvement.

The same reasoning can be applied to the aforementioned research on individual attention, structure, reinforcement, and early intervention. Although Lovaas (1987) and Clark et al. (1981) performed controlled experiments in these areas, the most striking evidence is found in case studies that are not controlled. Even the experiments used extremely small subject groups which, in both instances, were split even further into subgroups. The two experiments cannot even support each other because they differ fundamentally. Clark et al. (1981) used eight to fifteen year olds, whereas Lovaas (1987) preferred preschoolers. The earlier study tested the effects of task structure and interpersonal demands, while the later work utilized a more intense, longer-term behavioral treatment. Finally, the older children were evaluated based on social response and productive behavior and the younger children were tested for IQ and grade level.

Generally, there is a lot of doubt about the plausibility of miraculous improvement and recovery for autistics, and much criticism has been aimed at these methods. Therefore, few pursue the challenge of developing a therapeutic technique. For example, in an experiment conducted to determine how autistic children fare as adults (Freeman, Rahbar, Ritvo, Bice, Yokota, and Ritvo 1991), one child was dropped from the study because his family refused to participate in the second part which took place after a twelve year interval. They claimed that he was now in a regular school and was not longer autistic. This revelation was not explored any further anywhere in the article but was ignored. This dearth of evidence leads to a further question: should a parent of one of these isolated miraculous cases publish a book that claims to be a manual for parents and professionals in behavioral intervention, as Maurice, Green, and Luce did (1996)?

The work done so far in trying to help people recover from autism appears promising. The Grandin case study (Ratey et al. 1992) along with the case study of the two siblings with autism (Perry et al. 1995) are miracle stories that may give thousands of parents hope. However, they must be presented honestly, as two isolated occurrences that might have been extraordinary cases. Perhaps these three children had a rare form of autism or there was some unknown confounding variable that decided their fate. Probably the most valuable aspect of these case studies is the insight that Temple Grandin provided into the experiences of an autistic child.

If there is any chance at all that these techniques and treatments can be applied to others to help them achieve more and improve so dramatically, further research must be pursued. Several long-term projects are already currently underway. At least informally, these techniques are being utilized with some success. However, a treatment conclusively proven effective through controlled experimentation would be the ideal intervention for autistic people.

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Psychodynamic Perspectives of a Geriatric Depression Classification

Jonathan Schwartz

Bernice Anderson is a 78-year-old woman who is beginning to feel that life is not worth living. She recently became widowed, has severe arthritis, and sometimes finds it hard for her to care for herself. Her daughter Sarah, aged 50, recently told her that she may have to go to live in a senior housing situation of some kind. Sarah, a very busy professional woman with a husband and a family, recognizes that her mother cannot continue to live alone but she feels that she cannot have her mother living with her. Since these events have occurred, Bernice has not been eating well, is having trouble sleeping, and has lost interest in her hobbies of gardening and swimming at a local club, where she also used to meet friends regularly (Comer, 1995).

Depression is the most common mental health problem of older adults (Koenig & Blazer, 1992; Blazer, 1990). A range of depressive feelings from profound unhappiness to feelings of being blue and dissatisfied with life, have been reported by as many as 60 percent of older adults in self report questionnaires (Comer, 1995). Between 1 and 20 percent of older adults meet the DSM-IV's criteria for clinical depression. Those who have recently experienced a trauma, such as the loss of their spouse and those with serious physical illness have the highest rate of depression (Philpott, 1990; Bliwise, McCall, & Swan, 1987). The prevalence of depression is high in older people with cognitive impairment as well. As many as 30 percent of older adults who are diagnosed as cognitively impaired (that is, suffering from dementia) also have a significant clinical depression to contend with (Reifler et al., 1986). Finally, the prevalence of depression is higher in older women than in older men, although as with younger persons, it is unclear whether men genuinely experience less depression or simply underreport the symptoms they do experience. Men may also express their depression through physical rather than psychological symptoms (Blazer, 1990).

Having assessed geriatric depression using the DSM-IV's criteria for clinical depression and noting the strong incidence of depression in the population of the elderly, one is left to wonder if the etiology of the geriatric depression is the same as that of standard clinical depression. In fact, much of the focus of current research in geriatric psychopathology is focused on the etiology, assessment and treatment of a geriatric depression (Futterman et al., 1995, Beckham & Leber, 1995).

There is a debate among current geriatric researchers as to whether geriatric depression is a pathology of its own, containing its own etiology and method for treatment (Myers, 1995) or not (Futterman et al., 1995). Biological psychologists are inclined to view the high incidence of depression in the elderly as a result of the depletion of certain neurotransmitters or other neuroanatomical changes that occur as a result of the aging process. Since this process is unique to the elderly, the classification of a geriatric depression would be crucial to differentiate it from classical depression and implicate a different medical treatment regimen for treatment (Alexopoulos, 1995). Behavioral theory maintains that the etiology of depression is based on a low rate of response to contingent reinforcement. In essence, the depression is caused by the insufficient personal gratification to behavior. This learning may be more severe and of a different nature in older adults, thereby requiring a new classification of geriatric depression (Comer, 1995). However from a psychodynamic perspective, it appears that geriatric depression is the classic depression that occurs with an older population. The need for a new classification and treatment modality for geriatric depression would be unnecessary.

Depression

In order to properly assess the etiology of geriatric depression from a psychodynamic standpoint, one must first examine the psychodynamic conceptualization of depression.

In his earliest psychoanalytic theory of depression, Freud saw the condition as being the variant of the anxiety neurosis. At that time, his ideas were based on his work with patients who developed anxiety symptoms after engaging in sexual activities and did not experience orgasmic gratification. In such people, he perceived the undischarged libidinal energy as being directly transformed into anxiety. Depression was then seen as a long-lasting type of anxiety state caused by the chronic damming up of libido secondary to such sexual practices (Freud, 1898). This state was to be differentiated from the more melancholic ones, which Freud imagined to be caused by an actual loss of libidinal energy.

Almost 25 years later, in classic work on depression, Mourning and Melancholia (Freud, 1917), Freud noted that in mourning there was an actual loss of the person and the mourning process involved an unconscious detachment of feelings from the lost person over a period of time without any significant disturbance in self-esteem. In melancholia, on the other hand, the loss was experienced as if it had occurred to the self and was accompanied by a marked diminution in self-regard. Thus, mourning was seen as a normal state and melancholia as a pathological one.

Freud's close observations of melancholic individuals suggested to him that the reproaches directed against the ego were really meant for someone else, specifically the lost person. Later object-relations psychologists would interpret the reproaches against the self (Freud's ego) to really be meant for the lost love object (Myers, 1995). For example, the loyal wife who, depressed after the loss of her husband berates herself for being unfaithful may be referring to her

husband's tendencies to cheat with other women and to his ultimate infidelity in having abandoned her by dying. In essence, the Freudian melancholia is really introjection, the opposite of the ego defense projection (McWilliams, 1994).

Freud notes that melancholic persons choose their love objects on the basis of those objects similarity to the person. Thus, a loss of a loved one carried a concomitant threat of a loss of a highly valued aspect of the self and had to be defended against by an unconscious process of internalization or identification with parts of the personality lost person. Depending on the degree of anger felt toward the lost person, this process of identification could lead to self-reproaches and melancholia or to mourning and a subsequent working through of feelings for the lost object and a consequent shift of interest to others. Freud (1917) and Abraham (1916), theorized that inadequate oral gratification provided by the mother for the infant during the first year of life (the earliest libidinal stage) and excessive anger toward the object led to the potential that a child would develop melancholia in later life. Abraham went on to theorize a state of primal depression that followed blows to the infantile feeling of omnipotence and control over objects, namely the mother.

Following his formulation of structural theory, Freud's model of depression had to be reorganized. According to the newer model, the depressed individual was seen as orally fixated and attempting to defend against the potential arousal of depressive affect following a narcissistic slight. The melancholic individual's ego can be seen as being made to masochistically suffer at the hands of the sadistic superego because of intolerable feelings of guilt caused by excessive anger toward the person loved.

Stated in terms of self theorists, depression was an attempt to defend against the depressive affect by internalizing and merging unconscious representations of the ambivalently invested love object within those of the self and then directing those reproaches against the merged representations (Futterman et al., 1995).

Melanie Klein (1932) postulated a normal depressive phase, the depressive position, occurring during the early part of the first year of life. According to her theory, the child feared that its own anger could lead to the destruction of the object and a state of primal depression. According to Klein, as well as to Abraham, the depression of later life is really just a revival of the early experiences of object loss or separateness. Spitz and Wolf (1946) studying 170 mothering care deprived infants, saw early separation anxieties predisposing the infant to later adult depressive states. Benedek (1956) too, saw premature experiences of separation as leading to both heightened aggression toward a love object and to a depressive constellation.

Mahler (1966) theorized that depression was the basic component of the separation-individuation phase of childhood. It is the depletion of confident expectation of the mother and a concurrent loss of self-esteem that causes the depressive bouts. The realization of the inability to control the appearing and disappearing love object is what drives the infant into depression. Much current psychiatric work connecting depression to panic disorders is based on this theory. Thus up to this point, depression has been defined as a condition caused

by feelings of anxiety over the separation from love objects.

Jacobson (1946) came to believe that adult depression was the result of a presence of an overabundance of primitive aggression directed against the libidinal investment of the ego as a consequence of frustration expressed in childhood. Losses or frustrations in adult life were seen as triggers to the devaluation of the ego by the ego ideal and to a profound drop in self-esteem. Bibring (1953), in his psychodynamic model of depression, placed an even stronger emphasis on the self-esteem aspect of depression. According to Bibring, the depressive affect is a result of a state of helplessness and powerlessness of the ego, rather than being a reaction to object loss. He hypothesized that the inability for all humans to reach their lofty narcissistic aspirations leads to a state of depression prompted by a depletion of self-esteem. Thus, according to Bibring early infantile states of helplessness were more significant than primal depression in the foundations of adult depression. Dorpat (1977) followed Bibring's view that adult depression followed traumatic states of infantile helplessness. However, Dorpat felt that true depression only emerges when a child learns to distinguish between the temporary and permanent loss of an object. Thus, according to Dorpat, later life depression is really a more extreme form of an earlier depressive state the patient had experienced. With the current losses that the patient experiences, the depressive mood is set to take over again.

Aaron Beck, whose theory of depression and depression scale are synonymous with the disorder, combined a behavioral and a psychodynamic approach to this disorder. According to Beck, learned experiences of a negative nature give rise to depression. These negative experiences lead the individual to develop a pessimistic perception of himself which is then reinforced by life experiences. These negative cognitions lead to sadness and depression as the individual feels he lacks the elements for a successful life (Beck, 1976). To Beck, a psychodynamic-behavioral depression is based on learned cognitions. The learned materials may be more abundant in older age due to years of training, but the etiology of the disorder is essentially the same as classical depression.

Thus, the psychodynamic approach to depression views the depressed state as a response to the loss of a significant object not fully separated from the self. In an attempt to retain it, the representation of the object is merged even closer to the self. The result is the expression of conflict between the two representations. In addition, the degree to which one feels he cannot match up to the ego ideal determines the degree of the depletion of his self esteem.

Stated in terms of geriatric psychology, the classification of depression would be applied to a state that involved the loss of a significant object, usually a loved one, that was fully merged with the individual. This concept, merged with the feeling that one can not match up to the ego ideal, helps explain the large incidence of the depression in the geriatric population. The constant loss of loved ones and friends, a consequence of age, causes the start of the merger to the self. The added realization that as people of similar ages as the patient die, and that the patient will probably not reach his own ego ideal before dying cause

depressive feelings. These aspects of life are more common among the older population, thereby inducing higher depression rates within this population. Thus, a new classification of geriatric depression would be unnecessary from a psychodynamic perspective.

Geriatric Depression and Treatment

Use of the psychoanalytic method with older patients was delayed for many years because Freud (1898, 1904, 1905) felt that individuals in this age range would have too much material to deal with and would be uneducable because of their mental processes. It was only after Abraham wrote of his successful analytic treatment of patients in their 40s and 50s - geriatric by the standards of the time- that psychoanalysis began to be used with older patients. A number of articles (Alexander, 1944; Grotjahn, 1955; Kaufman, 1937; Meerloo, 1955) dealt with the use of analytically oriented therapies. They demonstrated that insight-oriented therapies were practical and desirable in older aged groups. Meerloo (1953) went so far as to disprove Freud, suggesting that the defensive structure of the individual becomes more malleable with advancing age which makes treatment even easier. Grotjahn (1955) noted that older people were more capable of forming intense transference and analyst's experienced stronger countertransference with older patients than their younger counterparts. Additionally, the research indicated that geriatric depression contained the same encounters with self -esteem regulations as younger patients. The difference, it seemed, was the added prominent fears of death that are quite noticeable in the geriatric population (Meerloo, 1955; Myers, 1995). Yet, despite the higher rate of death fears in the elderly, those fears also exist for the younger depressed population.

The sense of enhanced urgency and motivation seems to be easily detectable in recent clinical studies of older depressed patients (King, 1980; Myers, 1990). King feels that with the sense of motivation comes an awareness that life expectancies are limited and that a chance to change may not come again. Kernberg seemed to concur with the notion that older narcissistic patients who became depressed were easier to treat than their younger counterparts because of the inroads made by reality on their grandiose selves (Kernberg, 1980). Additionally, current dream research shows that older people have a larger occurrence of dreams whose manifest content deals with the death or permanent separation from a loved one (Myers, 1987). This finding seems to relate to the frequency of object losses in older people as well as the need for older people to come to terms with issues surrounding the realization of impending death.

Armed with the early models of depression and the earlier work with the geriatric population, recent theorists have observed that psychological development does not stop in either childhood or adolescence, but continues throughout the life cycle (Myers, 1995; Colarusso & Nemiroff, 1990; Nemiroff & Colarusso, 1985). This insight is important with respect to the issue of therapy with the older depressed population. It recognizes that these people are capable

of forming new concepts and relationships and of investing in their treatments in as meaningful a manner as many young people do. This idea is crucial in combating the attitude of therapeutic nihilism that the American Psychological Association has only recently begun to combat in the treatment of older patients (Scott, 1996). It will also explain a single psychodynamic depression instead of different classifications of depression based upon different age gradations.

Current trends in psychology have shied away from using psychodynamic therapy with the depressed geriatric patient (Comer, 1995; Beckham & Lieber, 1995). The assumption is that this type of therapy is too timely and unsuccessful to be effective. Even strong proponents of the psychodynamic approach seem to feel that initially antidepressant medication may be in order in the treatment of the clinically depressed elderly (Myers, 1991). This deviation from the classic psychoanalytic model in which intrapsychic change is supposed to be mediated solely through interpretive efforts on the part of the analyst had to be analyzed during the later phase of analysis. Research indicates that this reasoning is illogical. In fact, the success of psychodynamic psychotherapy is no lower than that of cognitive-behavioral therapy or psychopharmacology (Futterman et al., 1995). The system of psychodynamic analysis is a meaningful treatment modality for many older people as it is for their younger counterparts (Myers, 1995).

In conclusion, research surrounding the depressed geriatric population has shown the patients' defenses to be more malleable than their younger counterparts. The intense transference and countertransference situations were also more prevalent with this population. Whereas the trend of psychodynamic research with the elderly suggests that the etiology of geriatric depression is the same as the source of clinical depression, it would seem that analysis is both a viable and healthy treatment modality for many older people and that a new classification of a geriatric depression is unnecessary.

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