Anorexia Nervosa and Bulimia: An Activity-Oriented Approach

(cognition; eating disorders; occupational therapy, services)

Gordon Muir Giles

In recent years, there has been a growing trend away from a dogmatic adherence to any one approach in the treatment of eating disorders. This paper adds the new element of practice in relation to cognitive change. The activity-oriented approach outlined here stresses that patients with anorexia nervosa or bulimia must maintain responsibility for their own food intake throughout treatment. The key role of the occupational therapist in the treatment team is outlined, and suggestions for assessment and management of this type of patient are given.

Despite continuing research, the conditions of anorexia nervosa and bulimia defy simple explanation. Treatment of these disorders has been based on medical, behavioral, or psychoanalytic models, none of which have proved completely satisfactory (1). Clinicians often focus on certain aspects of a patient's problems that reflect their own treatment interests but fail to meet the patient's total needs. Because there may be multiple causative factors underlying any individual case of anorexia nervosa or bulimia, it seems reasonable to gear our treatment specifically to the needs of the individual sufferer (1).

Most authorities on the subject of eating disorders regard some form of psychotherapy as an essential part of treatment (2). However, the use of only a psychodynamic approach may not enable the patient to overcome all his or her practical difficulties. It is one thing for the patient to gain insight into his or her eating pattern via psychotherapy, but it is quite another for patients to behave appropriately when faced with the task of preparing food for themselves or others.

This paper outlines a practical approach that enables occupational therapists to use a wide range of activities to treat the patient with anorexia nervosa or bulimia. General guidelines to manage anorexia nervosa and bulimia are given; and where the principles of treating the two conditions differ, the differences are specifically highlighted. Various models of intervention are discussed. Particular attention is paid to the cognitive behavioral approach, because this approach appears most suited to the functional problem-solving skill of the occupational therapist. However, each individual therapist must determine the most appropriate intervention strategies for a particular patient.

Defining the Aims of Treatment

During the last 15 years, research in eating disorders has established certain minimal criteria to diagnose anorexia nervosa. One version of these criteria is found in the diagnostic category of the American Psychiatric Association's book Diagnostic and Statistical Manual of Mental Disorders (DSM III) (3) and is as follows:

a. intense fear of becoming obese, which does not diminish as weight loss progresses
b. disturbance of body image, for example, claiming to "feel fat" even when emaciated

Gordon Muir Giles, Dip COT, is a staff occupational therapist, St. Andrews Hospital, Northampton NN 15 DG, UK.
process in which the therapist pro-
suicide. Also, patients should
Gaining weight must be an active
achieve a degree of self-acceptance,
be able to maintain their weight
over a period of years, work to
volve guidelines for food intake but
does not take responsibility for en-
Individuals often suffer from extreme guilt during and
after “binging” and may not eat
until they binge again. Bulimia is
classed as a syndrome, sometimes
called “bulimia nervosa,” when the
sufferer is of normal or near-normal
weight.

The basic aim of treatment for
the anorexic is to regain weight.
Gaining weight must be an active
process in which the therapist pro-
vides guidelines for food intake but
does not take responsibility for en-
forcing them. Also, patients should
be able to maintain their weight
over a period of years, work to
achieve a degree of self-acceptance,
diminish their preoccupation with

food, and (if female) resume men-
truation.

The goals for the bulimic patient
are to feel that his or her eating
behavior is under control, to eat
regular meals, and to reduce the
pattern of eating and vomiting to
within manageable limits. In some
cases, the dysfunctional eating pat-
tern may be almost eradicated.
“Cure” is not the goal of treatment
for either the anorexic or the bul-
imic group. The patient must un-
derstand that although marked im-
provement is possible, he or she is
liable to have relapses, which are
more likely to occur at times of
stress (4). Eating and abstinence
will probably always remain an is-
ue for these patients. It should be
made clear from the start that the
patient’s degree of success depends
on his or her degree of motivation.

The actual organization of the
patient’s dietary intake is beyond
the scope of this paper; however, a
number of points can be made.
Treatment may be conducted on
an inpatient or outpatient basis. In
the case of the anorexic patient,
admission may be an emergency
because of starvation or electrolyte
imbalance. After the stage of “first
aid,” the anorexic must decide
whether he or she wishes to con-
tinue further treatment. If further
treatment is chosen, then guide-
lines must be established regarding
eating behavior. These guidelines
must leave the ultimate responsi-
bility for eating with the patient.
Taking responsibility away from
the patients causes their thoughts
about themselves, food, and their
environments to run along differ-
ent lines than their actual behavior.
The patient might still believe that
eating was “bad” but continue to
eat while promising to “atone” by
starving as soon as he or she was
able to do so. This could prove a

block to further progress. If, on
the other hand, eating is the pa-
tient’s responsibility, then the pa-
tient must decide to eat and can-
not discount achievement on the
grounds that he or she was forced
by others to eat. It should also be
clear to the patient that he or she
will not be encouraged to become
overweight and that the therapist
will help avoid this.

Some treatment units have
found it useful to divide the re-
ponsibility for patient counseling
between the nursing staff and the
person who gives the patient psy-
chotherapy. The former works
with the physical complaints asso-
ated with eating, whereas the lat-
ter addresses psychological and
emotional difficulties. The advan-
tage of this division is that the pa-
tient cannot obscure the issues by
constantly shifting ground between
somatic and psychological com-
plaints (5).

**Intervention Strategies**

Most of the modes of interven-
tion outlined below were devel-
oped to understand and treat an-
orexia nervosa. However, it seems
that only the cognitive behavioral
approach has seriously attempted
to tackle the problems of the bu-
imic patient.

**The Medical Approach**

In the medical model, the focus
of attention is on the physical state
of the patient. The patient is firmly
restricted to bed rest, and full nurs-
ing care is provided. The aim is for
the patient to maintain an adequate
diet and to avoid binging, vomit-
ing, laxative abuse, or too much
physical activity. This form of in-
tervention can be an essential life-
saving measure, and when it is
linked to psychotherapy has helped
some patients.
The Family Therapy Approach

In the family therapy approach, the level of intervention is not at the individual level but at the family unit level (5, 6). Dysfunctional attitudes and interpersonal dynamics are examined in a family context. This may initially take place at a family lunch, where the attitudes of the anorexic’s family toward eating, meals, food, and the anorexic’s behavior often emerge (6). By highlighting these dysfunctional interactions, the therapist can support a more appropriate interpersonal behavior. Therapy is continued after the patient is discharged, with the aim of restoring the patient’s weight and re-structuring the family system. However, the relevance of this approach for adult anorexic patients is extremely variable (7).

The Psychoanalytic Approach

Rare, though sometimes still used, the psychoanalytic approach explains both physical and psychological symptoms in terms of “oral ambivalence” (7). The psychoanalyst views the refusal of food as the patient’s defense against “magical” impregnation; this is a circular explanation with few implications for therapy. Discussion of the patient’s emotional problems often fails to prevent continued weight loss. By discounting the individual’s own capacity for understanding motivations, the psychoanalytic approach undermines the patient’s belief in his or her own power to change. Without using concurrent approaches, psychoanalysis has rarely been found to be effective (8).

The Behavioral Approach

The behavioral approach treats anorexia nervosa as an eating phobia. Because the condition is conceptualized as a fear of eating, attempts are made to counteract and desensitize the associated anxiety (8). However, in reality the approach often seems little more than a “feeding up” program that takes place in the hospital. Eating is encouraged by pairing it with powerful reinforcers (e.g., seeing visitors, watching television, or engaging in social interaction). This procedure has so little relation to anything the patient is likely to encounter when discharged that the possibility of any generalization of effect to the patient’s own environment appears remote. Similarly, it is possible that because the patient’s thoughts and feelings are largely deemed irrelevant for treatment purposes, his or her dysfunctional thoughts about his- or herself and food are not likely to change. Therefore it is hardly surprising that patients treated by this approach are generally unable to maintain their weight gain after being discharged from the hospital (6–9).

The tendency to choose either a psychotherapeutic or a behavioral approach fails to recognize the link between cognitive and behavioral factors; those approaches that exclusively address either cognition or behavior are likely to prove ineffective as a result. Research indicates that a number of different factors may play a role in the etiology of eating disorders. The amount of influence to be ascribed to any individual causative factor varies from patient to patient; therefore, an effective therapy should be both multimodal and individually tailored. The cognitive behavioral approach partially fulfills these criteria.

The Cognitive Behavioral Approach

Cognitive therapy emphasizes the role of negative cognitive distortion in many mental disorders. Although cognitive therapy was originally designed by Beck (10) for depressive, neurotic, and obsessive-compulsive subjects, many now consider it appropriate in the treatment of anorexia nervosa and bulimia (11). Faulty constructions of reality are considered detrimental to the individual’s behavior and emotions.

Although the patient’s behavior appears illogical, it may be quite logically based on certain fundamental premises and beliefs about thinness and weight loss. Therefore, the main form of therapy is to examine the patient’s thoughts and ideas about food and eating. In cognitive therapy, certain therapeutic techniques are designed to identify, test, and correct distorted conceptualizations. The individual is taught to monitor negative “automatic thoughts” and to recognize the connection between cognition and behavior. The patient is encouraged to examine evidence for and against these thoughts (e.g., “this food is bad and is instantly converted to fat”) and can be taught to identify and replace beliefs that lead to inappropriate behavior.

This approach differs from psychodynamic forms of psychotherapy in the types of issues focused on and from behavior therapy in that the patient’s internal experiences are focused on. Despite the many advantages of a cognitive behavioral approach, practical activity has been inadequately stressed. When particularly negative thoughts arise, they are dealt with more spontaneously in the relevant situations (e.g., helping a patient work through inappropriate thoughts about cooking and eating a meal would be most effectively

Despite the many advantages of the cognitive behavioral approach, practical activity has been inadequately stressed. Helping a patient work through his or her inappropriate thoughts about cooking and eating a meal is best done while cooking and eating.
done while cooking and eating). Understanding and insight need to be supported by activity; once the area of difficulty is isolated, the patient must practice alternative ways of behaving.

The therapist and the patient are joint experimenters with the attitude of "let's test this out and see what happens." The object of the experiment is not to prove the patient wrong but to help the patient discover the facts for him- or herself. Fairburn (4) gives an example of this kind of experimentation. A patient may insist that she is "fat" on some days and "thin" on others. The factor that lies behind this belief can be tested by getting the patient to weigh herself and measure her waistline every morning. Often the patient's subjective shape has more to do with any worries she may have than with her waist measurement.

During practical activities, basic assumptions may become apparent. On some occasions, simple recognition may either be enough to reduce the potency of certain beliefs or they may become the subject of further joint investigation. This paper presents an individualized activity-oriented approach, which retains the essential components of the models discussed, while being more specifically directed toward the patient's current individual needs. As occupational therapists, we could use this approach to establish a firm orientation toward rehabilitation.

**Occupational Therapy in the Treatment of Anorexia Nervosa and Bulimia**

The use of purposive activity has a long history in the treatment of psychiatric conditions. In the eighteenth century, with the advent of "moral treatment," activity was seen as good in and of itself (12), and in recent times this view has received research confirmation (13). Currently, occupational therapists emphasize the restoration and maintenance of functional abilities. The therapeutic activities used can be classed under two headings.

Under the first heading are those activities that are not directly relevant to individuals' normal lives outside the treatment setting but that are used because of the activities' ability to provoke adaptive changes in the way the individuals interact with and think about their environment and themselves. Examples of activities under this heading include discussion and expressive art groups. Under the second heading are those activities that clearly emphasize the practice of skills for independent living. Here, examples include the development of shopping, cooking, and work skills. Both types of activities are relevant to the treatment of anorexia nervosa and bulimia, and examples follow.

In any treatment program, a unified team approach is an essential prerequisite for a good outcome (2, 5). This is particularly true for anorexic patients, who are notoriously difficult to treat. Therefore, good communication between team members is of prime importance, and frequent team meetings are essential. The team may include the consultant psychiatrist, clinical psychologist, dietician, occupational therapist, the nursing staff, and social worker. Although some authorities look at the family as part of the treatment team, the team should work with (not for) the family. For example, a patient might sometimes be encouraged to behave in ways that may not be acceptable to the family. The following section details some general aims and treatment intervention strategies.

**Assessment**

As we stated earlier, assessment should be an active process that involves the patient and should begin on admission and continue until discharge and beyond.

It is important for the occupational therapist to look for strengths and weaknesses because the former can often be used to overcome the latter. Once the weakness is isolated, performance in this area can be practiced. Learning can be recognized by a decreasing variability in performance and an increasing smoothness and accuracy in execution. Once performance is adequate, it can be integrated into everyday activities. Initially, follow-up should be regular. This can be gradually curtailed, although the patient should understand that the occupational therapist is ready to assist if problems arise. The course of treatment can therefore be summarized as follows.

1. Assessment.
2. Practice (areas of deficit).
3. Consolidation.
4. Follow-up.

For example, anorexic patient was assessed and found to believe that any fat that she consumed would be instantly converted to fat on her body. Thus, when cooking, she followed the recipe except that she left out all ingredients containing fat. As a result, all baked goods and any dishes containing cheese and milk suffered.

Treatment was to work with the patient on overcoming her dysfunctional and erroneous thoughts while practicing the inclusion of fat in cooking. All recipes selected for practice included fat but were not excessive in fat content. On her first weekend leave, the patient included fat in meal preparation on Friday and Saturday, but by Sunday night she reverted to her previous behavior. This setback indicated that further practice and work on dysfunctional thoughts was required. Other steps to help the patient consolidate her new behavior needed to be taken (see *Cooking assessment and practice*) before the home cooking of a balanced meal could be resumed.
Establishing a Therapeutic Relationship

The first concern of the occupational therapist is to establish a good rapport with the patient. The therapist should let the patient talk and show an interest in him or her as a person. It is important neither to show a morbid fascination with the patient's condition nor to attempt to "preempt" the patient from presenting his or her case.

The patient should be encouraged to be as independent as possible, especially if the patient is part of an "enmeshing family" (6). The occupational therapist can encourage patients (particularly younger ones) to do their own washing, cooking, and self-care activities while actively discouraging family overinvolvement.

Establishing a Contract

Because of the nature of anorexia nervosa, most patients have a limited degree of insight into their problem. (This is less true of bulimic patients, who tend to be in an older age range.) Many anorexics also have difficulty in talking about themselves and their own feelings, especially those feelings that are not immediately socially acceptable. Because these factors vary from patient to patient, it is difficult to establish generalized treatment aims.

Negotiating a contract is often helpful in establishing a basis for treatment and helping patients to remember their individual aims (14). These contracts might include items such as "I want to be more assertive with others" or "I want to be able to express my feelings more." Contracts could also include things more specifically concerned with eating behaviors such as "I want to feel comfortable eating around others." However, the more general the wording of the contract, the less likely it is to provoke any behavioral change. To be effective, the contract should be specific to the needs of the patient. The contract should make clear that the patient is responsible for change and that his or her success depends on self-motivation. A contract also reminds the therapist of the importance of an initial and continuing assessment, which should be a joint undertaking between patient and staff. Evaluation of progress by patient and therapist can take place on a day-to-day basis.

A transient, though often severe, exacerbation of symptoms is not an infrequent feature in therapy. However, these lapses or setbacks can, if used correctly, be a great benefit in highlighting awareness of specific problem areas. The therapist should alert the patient to the possibility of symptom fluctuations and encourage him or her to use these changes to further progress.

For example, an anorexic patient with bulimic symptoms was being seen in an outpatient group. After making steady progress, she experienced what she regarded as a severe setback: subsequent to an episode of overeating, she failed to eat for two days, which was then followed by a further episode of overeating. In the next group meeting, the pattern of overeating, abstention, and associated dysfunctional thoughts were examined. The patient had already been warned that setbacks were an expected part of the treatment process, so that her guilt about "failing" and "betraying" the group were quickly dealt with rather than being a major obstacle to therapy. Patients and staff were able to use the opportunity to help her reality test some of her ideas about food and weight gain and to develop more effective coping strategies.

In the early stages of treatment, the patient vacillates between accepting problems and denying them. At one moment, the patient may claim that he or she is not ill and does not have an eating problem; the next moment he or she will say that if only the eating problem could be sorted out, everything would be all right. It is essential that the patient be encouraged to take responsibility for his or her own progress. By using a contract and problem-solving approach, many activities can be rendered relevant to the patient's individual aims of self-development and change. The occupational therapist is in a position to emphasize an activity-orientated approach to cognitive restructuring. Altering behavior is important because of the reciprocal interaction of thought and behavior. The occupational therapist offers the opportunity to test possibly erroneous and dysfunctional beliefs; activities both related and unrelated to food must be used (15). Throughout the patient's stay, the staff must remain flexible and must respond relevantly and spontaneously to new problems that arise during therapy.

Selected Relevant Activities

No activity is in itself therapeutic for the anorexic or bulimic patient. It requires the effort and commitment of the therapist and more
especially of the patient to design activities that will produce change. To this end, both the patient and the therapist should develop concrete goals for each session or course of sessions.

**Yoga**

Yoga exercises should be kept simple to prevent the anorexic-bulimic patient from using them as an aid to vomiting. In treating anorexia nervosa, yoga has many advantages over simple relaxation. When other physical activities are restricted, yoga provides much-needed body conditioning. Yoga involves movement, whereas relaxation therapy tends, at least superficially, to be a passive procedure. Therefore, yoga is easier for the therapist to supervise and also fosters patient involvement. Furthermore, the nature of yoga helps the patient control hyperactivity.

The anorexic patient is often anxious and frightened before meals and may suffer severe physical discomfort and feelings of guilt after eating. Scheduling yoga sessions before and after meals will help reduce these responses and alleviate some of the problems of after-meal supervision. The therapist can use the patient's obsession with physical activity to encourage participation in his or her own treatment.

**Cooking assessment and practice**

Cooking may appear to be an odd activity to encourage anorexic or bulimic patients to engage in. The patients, by definition, have problems with food. Yet, they are often good cooks even though they may not have cooked for a considerable period. Their preoccupation with calorie content may prevent them from producing a well-balanced, “ordinary” meal. The occupational therapist needs to emphasize caloric intake and help establish normal eating patterns.

In the later stages of treatment, when the patient may be doing the food shopping, the occupational therapist should determine if the patient can prepare a shopping list, estimate quantities of food to be purchased, cook what is generally regarded as a nutritionally balanced meal, and dispose of unused food and waste correctly. The occupational therapist should be present during the shopping and also during the cooking and eating of the meal. The therapist can provide moral support and, when necessary, prompt the use of coping techniques to resolve conflicts precipitated by the cooking practice.

At this later stage of treatment, meals in restaurants may be a useful preparation for hospital discharge. From a cognitive standpoint, the opportunity of cooking practice can be used to examine faulty information-processing and thinking “styles.”

**Assertiveness Training**

Most patients are generally insecure and fail to assert themselves appropriately. Assertiveness training groups can help patients firmly distinguish themselves from others without guilt. Patients are often taught to validate and appreciate their own feelings and to learn to understand and control their aggressive impulses.

Much of the therapist's work in group sessions involves facilitating the patient’s reality testing in two areas:

1. In individual relationships, and
2. In the elimination of erroneous attitudes. This process must occur slowly using concrete examples from the sessions to highlight the patient's inappropriate responses and false assumptions.

**Group Discussions**

Group discussions can involve just the patients but can also include other family members. Specific issues, relevant to the anorexic or bulimic, can be discussed such as “How has reaching target weight affected you?” or “How does anorexia nervosa affect the family?” An individual can often help and advise others but remain incapable of helping him-or herself. A multifamily group involves all the patients in the unit, their families (parents and siblings), and one or two therapists. In this group, common concerns of the family members can be addressed.
Craft Activity

Craft activities can increase feelings of efficacy and also build confidence. They can often be “diversional” and useful and can be employed like any other activity in the patient’s day to help him or her work toward the contract. Like any activity, crafts can be used cognitively to examine thoughts and styles of thinking. The patient’s reactions to failure and frustration, which are aspects of everyday life, can be examined and adaptive coping techniques can be developed.

Education/Information

Patients should receive information about the adverse effects of abnormal eating behavior. They need to have a clear understanding of the problems to be encountered, such as psychological manifestations of starvation and the possible physical consequences of prolonged vomiting or laxative abuse. Anorexia nervosa kills; the patient must be aware that if he or she does not eat, death is the result. At the same time, no attempt should be made to frighten the patient out of the condition, because these attempts are both divisive of the therapeutic relationship and uniformly unsuccessful. For the younger anorexic who is still in school, a liaison with her teachers should be encouraged.

Cognitive Behavioral Group

This group is used to help patients identify and change their faulty constructions of reality and their dysfunctional behaviors, which arise as a result of it. Several steps are necessary to accomplish this.

1. Dysfunctional thinking styles. Patients are encouraged to examine their own thinking styles for evidence of overgeneralization, magnifying the significance of events, all-or-none reasoning, superstitious thinking, and a number of other counterproductive modes of thinking. Eventually, the patient can identify these styles of thought and substitute a more appropriate and rational evaluation of events.

2. Identification and evaluation of automatic thoughts. Patients are encouraged to examine automatic thoughts and images (some patients’ thoughts are highly visual in nature) in relation to their effects on behavior. Patients are taught to counteract these thoughts by responding to them rationally. They are encouraged to examine the advantages, disadvantages, and logical inconsistencies of automatic thoughts and beliefs.

As we mentioned, coping skills can be developed and preparations made for loss of control and relapse. Doing so saves a great deal of time and is therefore better than trying to deal with the problems as they arise. I feel that it is also in this group that work on the misinterpretation of body image should be begun.

Teaching Behavioral Strategies

Even when the teaching of behavioral strategies is undertaken by a psychologist, the occupational therapist should be aware of and reinforce this treatment approach. Examples of possible strategies to use with bulimic patients include “Don’t eat or drink other than in the company of others,” “Only eat set meals,” and “Decide what is to be eaten before beginning to eat.” The most useful forms of coping strategies are those that either directly or indirectly reduce the availability of food. In addition, engaging in behavior incompatible with binging may also be useful, particularly at difficult times of the day, such as in the evening.

Other possibly useful strategies include the following:
• encouraging the patient to keep a food diary,
• encouraging the patient to write a daily record of dysfunctional thoughts, and
• teaching the patient stress management techniques.

The occupational therapist can make a home visit to help the patient work out a particular problem (e.g., storing food or cooking meals). The learning of coping strategies in the patient’s own home has obvious advantages regarding generalization.

Psychodrama

Psychodrama, when used by a trained therapist, can be a particularly effective technique to treat the anorexic patient. Some degree of insight into the patient’s problems is a prerequisite for using this technique, so it should be reserved for the later part of the treatment. The techniques used can be graded according to the patient’s needs. Family sculpture allows patients to represent externally their roles and positions in the family. Similarly, anorexics can be asked to sculpt their worlds, friends, families, and work to examine some of the complex interrelationships involved.

Patients of both sexes who have various diagnoses can be included in the sessions.

Clothes Shopping

After a period of weight gain, the patient finds that the clothes worn before treatment may be too small. Trying on old clothes for the first time after weight gain may be traumatic. Clothes may need to be altered and/or new clothes purchased. There may be the addi-
tional strain of having to share a changing room and to display a new “fat” person to others. Thus, the patient may need to be accompanied by the therapist to work the patient’s dysfunctional thoughts through.

Video Equipment and Access to a Library

The use of video equipment and library information on anorexia nervosa can be useful both as an educational device and as preliminary to discussion of a patient’s problems. Video equipment may be more effective than a mirror to eliminate body image distortions. It may also be useful for certain patients to read about their condition. This may help them reduce their sense of guilt about their disorder and identify with other patients who have recovered.

Follow-up

Patients are expected to attend follow-up as part of their commitment to treatment. Patients attend follow-ups weekly until both they and the staff feel that less contact is necessary. Meetings take the form of progress reports, with a review of weight and eating patterns. Problem-solving methods, coping skills, and plans for the coming week are revised. Family and friends can attend a concurrently run group for information and support. Referral to a self-help group may also be appropriate.

Conclusion

This paper presents occupational therapy as being vital in linking the practical, emotional, and cognitive aspects of the treatment of an anorexic or bulimic individual. However, this cannot be done without the active and willing participation of the patient.

Involving the patient in the treatment program is possibly the most difficult and most essential treatment requirement. The most effective approach is when both therapist and patient include in their therapy agreement some shared understanding of the complete task. An explicit and written contract outlining the respective responsibility and undertaking of both parties is useful. Such a contract should be discussed early in the treatment. Although it is sometimes difficult to obtain, a degree of mutual trust and cooperation is an important foundation to treatment.

ACKNOWLEDGMENTS

The author thanks Liz Allen, MS, OTR, and Mark Strasser, PhD, for their comments on this paper, the staff and patients of the Eating Disorder Unit, St. Andrews Hospital, Northampton, England for their participation, and Jean-Luc Herin and John Chapman for typing and editorial assistance.

REFERENCES