to decrease placebo reaction (Rickels, Lipman, & Raab, 1966; Snyder, Schultz, & Jones, 1974; Valins et al., 1971). The finding that previous experience with a treatment can both increase or decrease placebo reaction supports the contention that placebo effects can occur through any number of pathways. Differences in procedures, populations studied, or any number of variables could possibly account for these conflicting results.

There are at least four ways expectations contribute to placebogenesis: by classical conditioning, by "cognitive dissonance," by influencing the internal standard against which therapeutic effects are evaluated, and by affecting the hope and faith of an individual about the therapist and therapy.

The importance of expectations in drug therapy is highlighted by the findings that normal behavioral responses to active drugs are not found when patients are not told the nature of the drug they are administered (Lyerly et al., 1964; Penick & Hinkle, 1964) and physiological responses are decreased by inappropriate expectations (Penick & Fisher, 1965).

Classical Conditioning

When expectations are produced by prior temporal association, classical conditioning is believed to be a prime determinant of the placebo effect. The earliest demonstration of classically conditioned placebo effects was by Pavlov himself (Pavlov, 1927). Dogs who were initially injected with morphine reacted with salivation, nausea, and emesis. After repeated injections, the dogs displayed the same reactions to being prepared for the injection as they did to the initial injection. This conditioned placebo response was more complete and less dependent on the organism's motivational state than other forms of classical conditioning (Grant, 1964).

Classical conditioned reactions to drugs have been demonstrated in animals (Hernstein, 1962; Pickins & Crowder, 1967; Altman, 1971) and humans (Knowles, 1963). The finding that physiological reactions to drugs may occur quicker than when induced by a pharmacological mechanism has also been attributed to classical conditioning (Petrie, 1960; Stanley & Schrosberg, 1953).

Cognitive Dissonance

The anticipation that a therapy will produce a physiological effect can lead to the occurrence of that effect (Wolf, 1950). Cognitive dissonance has been advanced as a motivational mechanism that can account for psychologically caused changes in bodily states (Totman, 1976; Zimbardo, 1969).

When two beliefs are in a dissonant relationship (i.e., they are the logical converse of one another), there is believed to be a generalized (arousing) drive state within the individual to resolve this dissonance (Festinger, 1957; Pallak & Pittman, 1972; Waterman 1969; Zana & Cooper 1974). To resolve the aversive qualities of dissonance, individuals may be forced to change the attitude or belief that offers the "least resistance" to change. If attitutes or beliefs are strongly held, physiological functioning may be changed to achieve a state of cognitive consonance. Although the experimental demonstrations of dissonance produced physiological changes have been limited to pain endurance (Zimbardo, 1969), it is possible to envision more generalized application. An individual's belief in a prestigious therapist's dictum that certain events will occur ("my doctor said this therapy will make me feel better") or in the power of a therapy ("only very sick people fail to improve with psychotherapy") may be strongly entrenched. If the individual does not start to feel better, a state of dissonance will evolve. Beliefs that restore consonance such as "the doctor lied" or "the doctor did not know what he was talking about" may not be acceptable in the individual's value system. To achieve consonance, a dissonance caused placebo effect may be induced.

Internal Standards

Evaluation of a therapy is relative since an identical therapeutic outcome could be judged a success or a failure based solely on the criterion utilized. Therapies are evaluated in experiments by comparison with appropriate control groups. The criterion for the individual receiving treatment, however, is based on an internal standard. Expectations play a role in determining both the level and strength of this standard.

The placebo effect can be affected by instructions given by therapists that are conveyed by different therapists' attitudes (Uhlenhuth et al., 1959), or by explicity assigned roles (Uhlenhuth et al., 1966). An interesting finding is that unfilled therapeutic promises may backfire and lead to clin-