

as expectations and the meaning attributed to stimuli by patients (Wolf, 1959).

Acquiescence and Social Desirability

The basis of the placebo effect is often conceptualized as due to a response style characteristic. People who tend to comply with questionnaire items regardless of content, or who answer questions in a socially desirable manner, are considered likely positive placebo reactors.

Reports relating traits such as social desirability, response bias, acquiescence, and "yea saying" to placebo reaction have appeared in the literature (Fisher & Fisher, 1963; Gelfand et al., 1965; Pichot & Perse, 1968). However, this relationship has not been consistently substantiated (Bank, 1969; Fast & Fisher, 1971; Linton & Langs, 1962; McNair, Kahn, Dropleman, & Fisher, 1968; Shapiro et al., 1973; Raskin, Boothe, Schulerbrandt, Reatig, & Odle, 1973).

At best, traits such as social desirability and acquiescence can be considered weak correlates of placebo reaction. The influence of these traits might be more substantial when placebo effects are measured by self-report paper-and-pencil tests. It seems unlikely that a response can be totally dissociated from the content of the questionnaire material (Rogers, 1974; Rorer, 1965; Taylor, Carithers, & Coyne, 1976). Therefore, the importance of these personality variables in any particular study may be highly reliant on the specific questions used to measure the trait and the placebo effect.

Dependency

The concept of dependency involves both emotional and perceptual components. Clinical folklore suggests the association between emotional dependency and placebo reaction. However, the only measure of emotional dependency that has been related to the placebo effect is based upon projective techniques used in a study by Lasagna et al. (1954). This study cannot be considered as offering adequate support for the relationship between emotional dependency and placebo reaction because of the low reliability of projective techniques and other methodological shortcomings. Questionnaire measures of emotional depen-

dency fail to indicate any significant relationship (Campbell & Rosenbaum, 1967; Sharp, 1965). The related concept of external locus of control is similarly uncorrelated with the placebo effect (Bradsma, 1973).

The perceptual measure of field dependency, hypothesized as related to placebo reaction, has not been confirmed by empirical study (Bradsma, 1973; Dinnerstein & Halm, 1970; Freund, Krupp, Goodenough, & Preston, 1972; Shapiro et al., in preparation).

Introversion-Extraversion

Both introversion and extraversion have been related to placebo reaction. The rationale relating introversion to placebo response is based on learning theory. The placebo effect is viewed as a generalization from other situations. Introverts, having greater speed of conditioning, should acquire placebo responses more readily and lose them less readily than extraverts (Trouton, 1957). Although by no means unanimous (Shapiro et al., in press), some empirical data support this relationship (Luoto, 1964; Morison, Woodmansey, & Young, 1961; Thom, 1962).

The postulated relationship between extraversion and the placebo effect is based on extraverts' greater reliance on external factors. Knowles and Lucas (1960) have suggested that extraverts may be more apt to attribute relatively normal changes in behavior or physiological state to the action of an external agent such as a placebo. Support for this relationship is found in several studies (Black, 1966; Campbell & Rosenbaum, 1967; Gartner, 1961; Knowles & Lucas, 1960), but again, unconfirmed in a study of Shapiro et al. (in preparation).

Research supporting the relationship between the placebo effect and both of these opposite traits highlights the complicated association between personality and the placebo effect. It suggests the possibility of different pathways for placebo effects. The inherent contradiction of both introversion and extraversion being related to placebo reaction also suggests that this relationship may be artifactual. These results warrant further study utilizing reliable and valid measures of introversion-extraversion and the placebo effect.