

An Assessment and Nursing Application of the Concept of Locus of Control

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SOME OF THE MOST COMMON and challenging of clinical nursing concerns are compliance behaviors that might be handily categorized as the three Rs—reluctance, reactance, and recidivism. Reluctant patients, probably the greatest in number and most in need of care, are the “no shows,” people uninterested in availing themselves of health services. Reactance encompasses a variety of affective behaviors exhibited by patients in response to necessary therapy or changes required to improve or ensure health. This may be expressed as recalcitrance (an outright, obstinate refusal to comply) but more commonly is reflected in a variety of more covert, yet equally problematic reactions. For some, the restraints of hospitalization, treatment, or prescribed and often restrictive regimens are unduly heavy burdens in conflict with their need to freely direct their life affairs. For more passive and submissive people, compliance is a depleting experience. The continual direction

and supervision that nurses must provide when patients do not actively assume responsibility for their own health care may result in lower self-regard and feelings of impotence on the part of these patients. Reactions such as these can eventually lead to either noncompliance or compliance, but not without additional costs. Finally, recidivism refers to backsliding by patients who may have initially demonstrated both a willingness and an ability to bring about positive health outcomes but are unable to sustain their efforts over a prolonged period.

When confronting difficulties exemplified by the three Rs, nurses can exempt themselves from further efforts to effect change; they can respond with increased exhortation and even chastisement; or, instead, they can reflect on the causes of these phenomena and seek solutions.

Compliance problems are highly complex and not readily reduced to a single, simple explanation. The concept of locus of control provides not only valuable insight into one aspect of these concerns but also supplies an available means for remedy.

LOCUS OF CONTROL

Locus of control deals with individual interpretations of the causality of behavioral outcomes or reinforcements. People differ in the degree to which they attribute reinforcement to their own behaviors or qualities or, conversely, view such events as being independent of these personal phenomena. Individuals who believe that what happens to them is primarily due to their own actions or attributes are characterized as having an internal locus of

control, while those believing what happens to them is principally because of luck, fate, chance, or powerful others, or is unpredictable because of the complexity of the situation are considered to have an external locus of control.

The concept of locus of control is derived from Rotter's social learning theory.^{1,2} This theory implies that individuals have a choice in how they will behave,³ and before deciding on a particular action they first must consider both their valuation of the outcome (reinforcement value) and their estimation of the likelihood or probability of its occurring (expectancy). In any specific event, people judge their chances for success by assessing immediate situations (situational expectancy), but they also draw upon what they have learned from past experiences that seem similar to present experiences (generalized expectancy). Because such generalized expectancies also influence perceptions and meanings given to present situations, the importance of the role of generalized expectations in determining behavior becomes apparent.

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be brought about by introducing new experiences that alter previous patterns of success and failure,"^{4(p13)} the potential always exists for changing a person's locus orientation.

ASSESSMENT

In the present preparadigm phase of nursing science,^{5(p39)} use of knowledge from other disciplines provides one means for investigating clinical nursing concerns. However, in selecting and applying such knowledge (in this case, the psychological concept of locus of control), critical assessment is an essential preliminary. Validity of meaning, degree of abstractness, operationalization, and utility are the criteria or standards against which the concept will be evaluated in this article.

Validity of Meaning

Validity of meaning or intersubjectivity is the shared agreement among scientists on the meaning of terms.^{6(p16)} If a concept is clearly defined and differentiated from other similar ideas, then understanding and use of the concept are considerably enhanced. Rotter has provided an explicit definition of locus of control and has also discussed how it differs from other concepts dealing with the general idea of inner versus outer control.² Rotter points out that locus of control is a psychological concept that focuses on differences in individual expectancies for control of outcomes that are subjective experiences. This perspective is distinctly different from that of anomie, alienation, or inner-other directedness—sociological concepts that deal with normative behaviors or socially

established standards from which others view us.

Degree of Abstractness

In determining the degree of abstractness of a concept, two criteria may be used: first, whether the concept can be subsumed by other concepts^{6(p50)} and second, its degree of generality or the extent to which it varies over time and place.^{7(p101)} Within social learning theory, locus of control represents one kind of generalized expectancy. Because generalized expectancies are one type of expectancy, the concept is evidently less abstract than those theoretical constructs by which it is subsumed. Yet as a general expectation for control, the concept is a personal characteristic that, while alterable, is relatively stable over time and place.^{2(p1)} Theoretically, locus of control is a variable concept that exists on a continuum. Such concepts have a good degree of generality.^{7(p101)} The conclusion is that the concept is empirically useful. It is stable enough to provide one means for differentiating people when trying to understand behavior differences; yet it is general enough to be used across different time periods, diverse settings, or various situations.

Operationalization: Rotter's Scale

Operationalization is the process of linking the abstract with the specific, the theoretical with the real world.^{8(p6)} Operationalizations are generally concerned with measurement.^{9(p8)} A considerable amount of attention has been given to measuring locus of control. Rotter not only provided a clear operational definition of the concept, but also developed an I-E (inter-

nal-external) Scale,² a twenty-nine item, forced-choice questionnaire that was preceded by 4 other scales and remains the most popular among the more than 16 I-E scales now in existence. Test-retest reliability is consistent and acceptable between 49% and 80% for two very different samples and with varying time intervals.^{10(p609)} The test-retest reliability indicates that the scale is a stable and repeatable instrument that would produce the same or similar results when readministered. Internal consistency estimates of reliability have ranged from 69% to 79%,^{2(p13)} showing that subjects mostly had consistent answers.

However, there is evidence that the scale lacks discriminant validity. In some situations subjects may tend to answer in socially approved ways (generally reflecting a more internal locus of control), rather than give their true beliefs. Correlations of this scale with the Marlowe-Crowne Social Desirability Scale range from $-.20$ to $-.42$ ^{11(p229)} and with the Edward's Social Desirability Scale from $-.23$ to $-.70$.^{12(p449)} Consequently, because some situations can "provide cues related to the subjects' expectancies for reinforcement" for answering in a certain way,^{13(p118)} this factor may have to be considered as a mediating variable and needs to be controlled by study design or statistical analyses. Another scale having more discriminant validity (eg, the Nowicki-Strickland Scale) could also be used.^{14(p268)}

There are also questions concerning the unidimensionality versus multidimensionality of the scale. Recent factor analyses^{15(p226),16(p1199)} reveal that the scale, while heavily loaded for personal control beliefs, also contains a second factor,

control ideology, or the extent to which people generally have control. The locus of control concept may be more complex than originally thought. Gurin et al¹⁷ have differentiated among beliefs in personal control, control ideology, system modifiability, and race ideology. In addition to the common theme of I-E control, Collins¹⁸ has identified four other factors or beliefs in (1) a just world, (2) a predictable world, (3) a difficult world, and (4) a politically responsive world. Currently, two positions are being taken in the development and use of I-E scales. Many prefer a unidimensional stance because it is consistent with Rotter's original goal of a general measure. Others believe that a multidimensional scale will contribute to refining and extending the theory and also, perhaps, may explain insignificant and theoretically inconsistent findings in some of the locus of control research.

Additionally, Levenson¹⁹ has differentiated between persons with an external locus of control who believe in chance and those believing in powerful others. Studies by Hochreich^{20,21} have identified persons with a true or "congruent" external locus of control and those with a "defensive" external locus of control who differ from persons with a true external locus of control in that they are less trusting (measurable on the Rotter Trust Scale), exhibit more striving in achievement situations, and, while having lower expectancies for success than persons with an internal locus of control, have more valuation of success than do persons with a true external locus of control.^{22(p205)} Hochreich suggests that such individuals assume an external perspective to guard against failure or negative feedback to which they appear

especially sensitive. Differences in types of persons with an external locus of control indicate that the categories of internal-external locus of control, while mutually exclusive, are not necessarily exhaustive. While persons with an internal locus of control are relatively homogeneous, those with an external locus of control are not.^{10(p612)} Prediction may be improved when such differences are considered.

One final limitation of the scale is that as an additive measure it gives us some idea of individuals' beliefs in control across a number of situations but tells us little about their beliefs in control of outcomes in any one kind of situation. Consequently, a number of more situation-specific measures have been recently developed. Of particular interest for nurses are the unidimensional^{23,24} and multidimensional²⁵ Health Locus of Control Scales developed by Wallston et al, which should prove more useful in the study of health-related topics.

Utility

Adequate operationalization of the concept facilitates its use by researchers, but the real test of a concept is its usefulness. Has it really contributed toward increasing our understanding and ability to explain, predict, and control events?^{6(p4)} The fact that there have been at least ten literature reviews of locus research^{2,4,11,26-32} indicates the extent to which the concept has been used. Considerable research demonstrates that differences in locus orientations do lead to characteristically different behaviors among a variety of samples and in many different kinds of life experiences. Additionally, some recent studies^{24,33-36} that

have considered reinforcement value in addition to locus of control have found that prediction was enhanced. However, to really answer the question of the concept's usefulness, a look at research findings is necessary, guided by the initial concern with compliance problems.

SELECTIVE RESEARCH REVIEW

It might reasonably be expected that compliance would be considerably enhanced if clients actively seek and master health care information, use and relate well to health care personnel, defer immediate gratification for long-term, more valued health goals, take fewer health risks, are responsible and independent in their own health care, and demonstrate an interest in achieving or maintaining health.

Learning Studies

Many studies related to learning suggest that persons with an internal locus of control are more successful than those with an external locus of control in initial mastery of health information,³⁷⁻⁴⁰ and that their learning is enhanced when health is highly valued^{24,25} and when information is presented in programs consistent with their preference for control and independence.⁴¹⁻⁴³ Although persons with an inter-

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nal locus of control do not necessarily differ from those with an external locus of control in either intelligence or learning achievements, they do appear more motivated⁴⁴ and better able to extract relevant information or situational cues and use these data in effective problem solving.^{45,46}

Social Relations Studies

In relating to others, persons with an internal locus of control display greater trust in strangers,¹⁴ are more willing to approach, use, and benefit from assistance from authority figures,⁴⁷ and are more apt to accept public pronouncements supported by evidence (such as the Surgeon General's Report on Smoking).⁴⁸ Perhaps because they are generally better liked⁴⁹ and more persuasive,^{50,51} persons with an internal locus of control have been shown to influence health care professionals' decisions,^{52,53} which may reflect not only their ability but also their desire to be active participants in their own health care.

Studies of Gratification and Risk Taking

Although the findings are not entirely consistent, partly due to the use of unusual samples or possible other mediating variables (such as educational level or subjects' devaluation of offered reinforcements), studies on deferred gratification and risk taking generally show that persons with an internal locus of control are better able to forego immediate rewards in favor of more valued, long-term goals;⁵⁴⁻⁵⁷ are better able to project into the future, a requisite for even considering long-range plans;^{58,59} and are apt to be moderate in risk taking.⁶⁰⁻⁶² In regard to

risks, use of seat belts, associated with the use of other safety measures, is more prevalent among persons with an internal locus of control,⁶³ who are also less accident prone.⁶⁴ Numerous studies have also established that nonsmokers tend to have a more internal orientation;⁶⁵⁻⁶⁸ among smokers, persons with an internal locus of control are most likely to alter their risky habit either independently or following participation in a planned program.^{42,69-71}

Studies of Self-Reliance

Persons with an internal locus of control, believing that their actions affect outcomes, may have a greater sense of responsibility for behavioral outcomes. Although self-reliant,⁷² having high valuation of self,⁷³ and perhaps even a need to control events,⁶² they are ready to remedy personal deficits whenever possible,⁷⁴ appreciate feedback,⁷⁵ are willing to acknowledge shortcomings,⁷⁶ and will seek help from experts when they genuinely feel incompetent in a situation.⁷⁷

Locus of Control and Health

In maintaining health, undergraduate men having a more favorable attitude toward physical activity and participating more in planned sports programs were found to be internally oriented.⁷⁸ Volunteers for learning biofeedback techniques to control stress and hypertension were also internally oriented.⁷⁹ Persons with an external locus of control were more apt to delay corrective surgery,⁸⁰ and although findings again are not uniformly consistent, externality has been associated with being overweight⁸¹ and less successful in weight control programs.^{24,25,40,82,83}

Although findings in some areas are inconclusive, the bulk of the research evidence reveals internal attributes and actions that would effect compliance. Additionally, internality is an advantage when considering reaction to illness and treatment. Illness may be described as an externalizing event because studies that compare locus orientations of the sick with those of well individuals demonstrate increased externality among the ill.⁸⁴⁻⁸⁸ This is especially noticeable on initial diagnosis^{89,90} and, in the case of persons with hemophilia, among those having a marginal status (ie, experiencing the ambiguities of a chronic yet nonacute disorder), rather than among those more severely afflicted.⁹¹

A number of studies have also found characteristic differences among internally and externally oriented individuals in response to threat (which could be easily related to illness or illness events). Again, internality is the more desirable perspective. Although persons with an internal locus of control exhibit denial when confronted with a threat,⁹²⁻⁹⁴ it is not so intense as to prevent them from trying to improve their situation.⁷⁴ Externally oriented individuals, in contrast, while exhibiting less denial, feel less responsible for outcomes,^{22 (p199)} especially unfavorable ones,⁷⁶ and prefer situations that enable them to rationalize failures⁹⁵ and whose outcomes depend on luck rather than skill.⁷³ When frustrated in achieving desired goals, externally oriented individuals may display aggression⁹⁶ or devalue the previously desired objective.⁹⁷

In commenting on externally oriented individuals' defensive reactions, MacDonald has remarked that "motivation and

internality leads to optimism" and striving, while "motivation and externality can only lead to despair." Such subjects may really want success but do not believe that their efforts will help.^{98 (p115)} Consequently, staff efforts at increasing motivation without similar attention to external expectancies can actually be detrimental. Some support for MacDonald's hypothesis is found in studies^{88,99,100} showing that more internally oriented patients are better adjusted and more motivated in rehabilitation. Goldstein and Reznikoff¹⁰¹ found that dialysis patients whose external orientation enabled them to cope with their feelings of heightened responsibility and restrictions associated with their treatment resulted in noncompliance, thus jeopardizing their survival and constituting what those authors refer to as a form of suicide. Externally oriented individuals' form of denial, which does not negate problems but denies behavior contingencies, may be the worst kind of all.

RESEARCH CRITIQUE

Use of the locus of control concept in health-related situations is not without problems. One of the more obvious difficulties is that many health behaviors are inordinately complex. When researchers use locus of control as a sole predictor, findings may not reach statistical significance. In most health-related situations, locus of control is a mediating variable. Other factors such as support systems and more practical concerns such as symptoms, costs, and accessibility to health care services must necessarily be considered. Use of the other variables in the predictive formula suggested by Rotter (situational

expectancies or perceptions of controllability and reinforcement value or goal valuation)² would also be more predictive of action. A multivariate approach seems essential for prediction in these situations, and this has been overlooked in many studies.

Additionally, generalized expectancies such as locus of control exert their most profound influence in novel or ambiguous situations. Their use as predictors in familiar health situations or long-standing illnesses is inappropriate. Recognition of this has led to the recent trend toward more situation-specific measures. Given the distinctive characteristics of many illnesses, development of disease-specific measures may be necessary to achieve the degree of control required in clinical practice.

Problems also result when convenience samples are used, which is often the case in clinical situations. Some studies do not have any control groups or compare groups that in many respects are not equal. An example of this is the Lowery and DuCet⁴⁰ study comparing two groups of individuals with adult-onset diabetes who differ only in their length of illness, with no regard to the severity of their disorder or differences that might have existed in the clinical treatment (instruction, medical therapy, or relationships with staff). Another more dramatic example was the finding that persons with medical hypertension (eg, hypertension secondary to renal problems) were more anxious than persons with psychosomatic hypertension (essential hypertension) without taking into consideration that most persons with medical hypertension were being prepared for or were in the process of dialysis while

their psychosomatic counterparts were nonacute outpatients who showed only an elevation in blood pressure.¹⁰² The effects of therapy may have obfuscated what the researchers had hypothesized—that increased anxiety contributed to essential hypertension.

Other difficulties arise from the fact that until recently distinctions among the various types of externally oriented individuals were not made. As noted, persons with a falsely internal locus of control, who perceive the testing situation as an achievement occasion, may respond in an approved way rather than express their true beliefs. Such factors can considerably distort findings and are often not subject to sufficient consideration in many studies. Differentiation among different types of externally oriented individuals seems particularly important, not only in terms of theory content but also in interpreting research outcomes. Differentiation among externally oriented individuals may have important implications for approaches in the nursing care of such individuals, and therefore should receive more attention in future studies.

Finally, all studies demonstrating a relationship between locus of control orientation and behavioral outcomes are correlational in nature and show an association, not a causal relationship. The implementation of locus change techniques would provide a more experimental approach, providing a more stringent test of the validity of the theory.

INTERNALIZATION TECHNIQUES

If expectancies are alterable and if an internal locus of control is a desirable

perspective in compliance, then how can such an orientation be achieved?

A number of studies show that subjects reveal a change toward internality after completion of various therapies, including life crisis resolution,¹⁰³ a process-oriented program for collegiate low achievers,¹⁰⁴ encounter groups,¹⁰⁵ a self-directed weight reduction program,¹⁰⁶ brief psychotherapy,¹⁰⁷ a community action program,¹⁰⁸ behavior modification,^{109,110} life-planning workshop,¹¹¹ personal growth experiences,¹¹² sensitivity training,¹¹³ and structured training of nursing students in helping behaviors.¹¹⁴ Testing for changes in locus orientation in these studies was undertaken principally to assess the value of the various therapies but also demonstrates that exposure to planned programs, like other social learning experiences, can modify locus beliefs.

Measures that have as their prime objective the promotion of increased internality have been identified by MacDonald¹¹⁵ as (1) "reconstruction of stimuli,"¹¹⁶ (2) action-oriented approach,¹¹⁷ and (3) counseling techniques.¹¹⁸

Reconstruction of Stimuli

The principal focus in the "reconstruction of stimuli" approach¹¹⁶ is on helping individuals alter their perceptions of a particular life situation. Ostensibly, reinterpretation is achieved through discussion and argumentation, individuals' outlooks are changed and they are better able to engage in the desired behaviors without having changed the situation. To illustrate this method, Masters presents a case study of a rebellious adolescent who describes himself as a "pawn," obligated to perform

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tasks he views as demeaning, such as taking out the trash or mowing the lawn, to have privileges such as use of the family car and extended late hours. His resistance to parental demands results in family strife, culminating in his becoming inebriated, stealing a car, and getting arrested. A court-appointed counselor encourages the teenager to use "good son behaviors" as a means of controlling parental altercations and for obtaining the privileges he wants. The teenager tries this approach and is pleased with his parents' positive response and the rewards that follow. By altering his perspective so that he sees himself as the controller of others' reactions and of events rather than a victim of such factors, the teenager is better able to deal with his home situation, academic behaviors, and social constraints.¹¹⁶

This purposefully engineered reorientation method might be applicable in medical situations in which either diagnosis or treatment cannot be changed but the patient's attitude or interpretation might be altered. A diagnosis or treatment that is seen as a burden, punishment, stigma, or other negative event could be reinterpreted as a challenge, a means for better controlling one's health and life affairs, or a potential growth experience. An important prerequisite would be to discover how the person views his or her health situation

- 34 and whether he or she is amenable to considering and trying out an altered perspective.

Action-Oriented Approach

Another approach is behaviorally oriented, emphasizing the implementation of new behaviors rather than alteration of attitudes. The counselor aids the individual in identifying desired, achievable goals and developing specific actions for their attainment. The crux of this method is how individuals can accomplish the desired behaviors in the particular circumstances in which they find themselves. In a 1970 study, Dua¹¹⁷ demonstrated the superiority of this approach over no treatment and psychotherapy reeducation in improving interpersonal relationships, externality, introversion, and emotionality among college freshmen who had sought help because of interpersonal difficulties. Essentially this approach involves how to solve problems, a skill that externally oriented individuals may not have mastered simply because they do not see themselves as change agents. Presumably, once a person learns how to effect the necessary changes in his or her behavior and sees how these new actions change life events, belief in an internal locus of control is enhanced.

This approach can be readily incorporated into nursing situations in which health goals, specific health behaviors for achieving these goals, and strategies for effecting performance of these new behaviors might be developed with the patient. The nurse could provide direction in developing innovative ways for implementing the desired new behaviors, assess

progress, and work with individuals to develop their problem-solving abilities. Although not described as such, elements of the Dua action-oriented method are evident in a program entitled "Elimination of Self-Defeating Behaviors"^{119,120} and in a pilot patient education program^{121,122} and text¹²³ for asthmatic school children emphasizing self-reliance in health care. Helping patients clarify their management problems and plans was also one of several techniques (including behavior rehearsal and role playing) used to increase patients' self-confidence in controlling hypertension in an effort to improve medication compliance among black hypertensive outpatients at Johns Hopkins Hospital.^{124,125}

Counseling Approach

The third method, used primarily in school settings,¹¹⁸ involves challenging externally oriented verbalizations ("My father wants me to be a zoologist") and rewarding internally oriented ones ("I decided to study zoology"). This method allows individuals to recognize contingencies between their behaviors and outcomes by considering past, present, and future events; alternative actions; and the consequences of various behavior choices. Reimanis has presented three studies of students at different grade levels with whom these techniques were used.¹¹⁸ Considered individually, each of these studies might be questioned on the basis of one or more methodologic flaws including small sample size, Hawthorne effects, experimenter biases, and the relative permanence of the internalization effects and improved academic and social

behaviors exhibited. However, considered collectively, the studies demonstrate a practical application to diverse samples of an easily implemented technique that resulted in measurable and observable benefits for students. The Reimanis techniques have been successfully used in psychotherapy,¹²⁶ with rehabilitation patients,¹²⁷ with incarcerated felons,¹²⁸ in a structured camp experience for inner-city youngsters,¹²⁹ in training mental health workers,¹³⁰ and with school underachievers.^{131,132}

Mention may also be made of De Charms^{133,134} personal causation training aimed at changing feelings of being a "pawn" (eg, object influenced by others and events) to being an "origin" (eg, self as a source of control). De Charms has performed an extensive longitudinal study that demonstrates improved academic and classroom behavior by program participants. However, his concept differs from that of locus of control in that it emphasizes feelings about self rather than perceptions of control or contingency between behavior and outcomes.^{135 (p39)}

EVALUATION OF INTERNALIZATION TECHNIQUES: BENEFITS AND PROBLEMS

In briefly reviewing internalization techniques and their variations and use in several different kinds of situations, the question asked is: Which is the most effective technique? No comparisons exist on the relative efficacy of these techniques. Also, such methods might be most effective when combined—something that has not been done, although it has been

suggested by MacDonald^{115 (p47)} who notes that they are not incompatible measures. Or, as Phares^{4 (p169)} proposes, efficacy may be a matter of "fit," or articulation of an internalization method appropriate to each client. If so, then systematic study of the techniques that are best suited for various kinds of externally oriented individuals will be required. Because there are also many different bases for development of a particular locus orientation, the possibility for devising other internalization methods also exists. The need for further testing and refinement of already identified measures is apparent.

Dangers of Internalization

Although it is clear when considering the total research that distinct advantages are associated with an internal orientation, as with any intervention, the question must be asked: "Can it be harmful?" Wortman and Brehm^{136 (p331)} warn that internalization processes may be dangerous because they can cause individuals to respond maladaptively, exhibiting increased reactance, persistent striving, and increased stress when faced with truly uncontrollable outcomes. Lowery and DuCette^{40 (p361)} state that noncompliance and increased complications among internally oriented diabetics resulted when these persons realized that their learning did not help control their diseases. Strickland^{32 (p1200)} notes that increased autonomic responses by internally oriented individuals in achievement situations may have long-term adverse cardiovascular effects, and suggests that type A individuals may be extremely internally oriented types striving for control.^{33 (p228)}

Benefits of Internalization

These speculations are not consistent with much of the research. A study of myocardial infarction patients⁵³ showed that internality is associated with fewer unfavorable outcomes. This held true even for physiologic indices, except in instances when internally oriented individuals were highly anxious or made more distressed by treatments incongruent with their locus orientation. In a study of urban blacks,¹³⁷ the highest rates of hypertension were among discontented externally oriented individuals (46.2%), but discontented internally oriented individuals had a significantly lower rate (7%). A longitudinal study¹³⁸ showed that internally oriented business owners who had lost everything in a 1972 hurricane exhibited more instrumental than affective reactions, experienced less stress, and were more successful in reestablishing their businesses. A study of students tested under duress¹³⁹ revealed that internally oriented individuals were better able to attend to the test, cope with the experimenter's interference, and perform better than their externally oriented counterparts. These studies suggest that internally oriented individuals may be better able to handle situational stressors resulting from such uncontrollable events as aversive stimuli, acts of nature, sudden illness, or discontent arising from social inequities. If adaptation is viewed as a feedback process,¹⁴⁰ then internally oriented individuals, being more competent in dealing with feedback,^{82,141,142} should be more adaptable and better able to adjust to the contingencies of illness or disability.

Moreover, increased autonomic re-

sponses exhibited by internally oriented individuals in no-control laboratory situations^{143,144} may be caused by increased task engagement and attentiveness rather than increased anxiety.¹⁴⁵ Care should be taken in extrapolating findings from contrived no-control laboratory situations such as Houston's 1972 study¹⁴⁶ because they may not differentiate between internal and external subjects and therefore reveal nothing about the differential effects of generalized beliefs on situational perceptions and reactions. Additionally, many of these studies employ only one index of stress such as increased heart rate, as in the Houston study. Serious questions have been raised as to the sensitivity of heart rate as an index of emotional stress.^{147 (p371)}

All laboratory experiments are limited to immediate responses and do not consider the affects of prolonged exposure or multiple stressors that presumably are the types of conditions implicated in pathologic alterations. In weighing the immediate benefits of increased arousal against the long-term costs of such responses, one may also need to examine not only hyper-responsiveness but also ineffective damping. In one study, type A individuals differed from other workers not so much in their degree of arousal as in their failure to decelerate or dampen stress responses during rest periods.¹⁴⁸ The ability of internally oriented individuals to discriminate among environmental cues,^{44,149} to be more sensitive to their inner responses,¹⁵⁰ and to excel in measures for controlling physiologic reactions¹⁵¹⁻¹⁵⁵ suggests that such persons are better able to make appropriate responses, be more aware of any inner distress, and control reactions if necessary.

The fact that social desirability, particu-

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larly in achievement striving, is not always determined among subjects tends to confuse findings in studies examining control or no-control situations. Belief in control does not always mean that one needs to control all outcomes. As both Goodstadt and Hjelle⁵¹ and Mlott and Mlott⁷¹ suggest, the more controlling person is often the most externally oriented. Because of heightened achievement needs, such a person might test as falsely internally oriented.

In life, as in illness, there are many situations whose outcomes are uncontrollable. This can lead to extreme externality or learned helplessness^{156,157} or increased reactance.¹³⁶ More commonly, it can lead to rethinking about goals and plans, realistically accepting what cannot be changed, and managing what can be managed. Lacey^{158(p15)} has differentiated between "outcome control" and "agenda control." While some outcomes may be inevitable, the human capacity to manage situations (agenda control) always remains. Cultivating internality is highly desirable in preventive health, learning situations, and curable illness because these events have largely controllable outcomes. In chronic illness or incurable disorders, belief in control of situations can be beneficial in offsetting adverse emotional responses of hopelessness or increased frustration.⁹⁶ Finally, there is little danger of transforming an

external individual into an extremely internal individual because illness, and much of the medical situation as well, are externalizing events, and because it is possible to retest subjects and monitor changes. Perhaps the most appropriate safeguard would be to elicit individuals' perceptions of the illness situation and if they see it as an achievement situation, help them set realistic, attainable goals (ie, focus on agenda rather than outcome control).

Stability of Internalization

Another concern is the stability or duration of internalization following exposure to these methods. It seems unrealistic to expect that a few exposures to these measures will ensure an internal orientation forever. Several studies attest to the need for continued follow-up in chronic illness.^{159(p1305),160(p1111)} It seems prudent to follow such patients and to provide additional training on request, periodically, or as needed according to patient status.

Objections to Internalization Techniques

Finally, reluctance to implement internalization techniques can arise for individuals who may view belief changes as a form of manipulation, mind control, brainwashing, or other infringement of patients' rights. These concerns may be addressed to some extent by the fact that all subjects must give informed consent. Moreover, such techniques are no more manipulative (and perhaps less so) than common clinical practices such as teaching or the use of behavior modification techniques. They are certainly preferable to abandoning, upbraiding, or harassing noncompliant patients.

Use of Internalization Techniques in Nursing

Noncompliance is one of the established nursing diagnoses.^{161 (p3)} Incumbent in the identification of nursing diagnoses is the equally important need for explicating appropriate nursing therapies. Nurses' reactions to noncompliant patients may stem from their feelings of being rejected by patients, but more likely arise out of

frustration when they recognize the importance of the patients' adherence but do not know how to achieve this goal. When the diagnosis of noncompliance is established and is associated with an external orientation, then the treatment of choice could be internalization training. For this reason, further exploration of internalization techniques is an appropriate focus in nursing research.

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