Patients' Dependence and Independence Levels on the Prehospitalization-Postdischarge Continuum

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Levels of dependence and independence were studied in 26 patients who had total hip or total knee replacement procedures. Four instruments—a three-situation questionnaire, Beller's Behavioral Checklist, the D-I Scale, and the Navran Dy portion of the Minnesota Multiphasic Personality Inventory—were administered. Tests were given at five times: prehospitalization, presurgery, postsurgery, predischarge, and postdischarge. Dependence and independence levels were found to change along the prehospital-postdischarge continuum, according to the stress of hospitalization and surgery. There was, however, no significant difference in dependence scores between the prehospitalization and postdischarge administrations of the scales.

RELATIVELY little attention has been given to dependence and independence as integral parts of the pattern of human behavior, and little consideration has been given to their relationship to illness and hospitalization and to their functional relationship to nursing care. Although clients are frequently described in nursing as excessively dependent or excessively independent, nursing has been left to deal with these problems without adequate theoretical knowledge and measuring devices on which to base assessment, diagnoses, and interventions. This study attempted to alleviate part of this dilemma through focusing on the problem: Does the stress of hospitalization and surgery produce changes in an individual's dependence and independence levels?

From this central question three research questions evolved:

- Do the research findings support the existence of dependence and independence in adults in forms similar to those reported by Beller (1955), Cox (1953), and Heathers (1955), whose investigations dealt primarily with young children?
- Do the research findings support the existence of changes in dependence and independence levels of adults along the prehospitalization-postdischarge continuum?
- Do the research findings support the existence of dependence and independence as separate entities as opposed to the common notion that each constitutes the opposite end of a bipolar continuum?

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Theoretical Framework

Although the definition of dependence has been operationalized within sociologic (Parsons and Fox, 1964), psychologic (Lorenz, 1957; Sears *et al.*, 1957), and psychoanalytic (Parens and Saul, 1971) frameworks, the definitions contain obvious commonalities. Among such operationalizations are: "a class of responses capable of eliciting positive, attending and ministering responses from others" (Bandura, 1969, p. 139); "a learned or conditioned drive for attention, approval, affection reassurance and nearness" (Gewirtz, 1956, p. 211); and "seeking physical contact; proximity, attention, help; recognition, praise and approval" (Beller, 1955, p. 25).

Agreement among these respective constructs exists also on the psychogenesis and development of dependence. The former is depicted as directly emanating from the total dependence of the human infant upon its mother for survival, and the latter as being related to environmental factors such as social, cultural, and situational forces upon the infant's learning. Although little can be found in the literature about "normal" dependent behaviors in adults, there is evidence that behaviors learned in childhood are carried into adulthood (Grinker and Spiegel, 1945). Based on interpersonal and behaviorist theories (Bandura and Walters, 1963), dependence may be considered an integral part of the pattern of human behavior. The results of a study by Kagan and Moss (1960) support this consideration in that certain childhood patterns of dependence were maintained into adulthood.

Portions of this framework were adapted from an unpublished manuscript, *A Theoretical Framework of Dependence and Independence in Adults throughout the Health-Illness Continuum*, authored by Dorothy Clough, Virginia Wittig, and Anayis Derdiarian, May 1973.

Two major types of dependence–psychologic and physical–were considered in this study. Psychologic dependence is the direct or indirect eliciting of physical contact, proximity, attention, recognition, reassurance, advice, and help which are not needed in relation to physical or biologic capabilities. Physical dependence exists when one is biologically helpless and cannot or does not seek necessary assistance.

Satisfaction of both psychologic and physical dependence can be accomplished through direct and indirect means. Behaviors which directly seek to insure reliance on others for help, assurance, attention, nearness, recognition, and related responses are considered overt behaviors; covert behaviors include acceptance of these responses when offered by others and indirect eliciting of these responses in others.

Independence has not been as thoroughly researched as dependence. It has been defined in terms of behaviors depicting taking initiative, overcoming obstacles, persistence, wanting to do something, and wanting to do something by oneself (Beller, 1955). Independence is usually viewed as the opposite of dependence; however, Beller postulated and supported through research that the relationship between dependence and independence is moderately but not perfectly negative, suggesting that dependence and independence exist as two separate but related entities and not as opposite ends of a single continuum.

Dependence and independence, as other personality characteristics, have been viewed by theorists as personality *traits* and as transient *states*. Ford and Urban (1963) described "trait" in terms of the generality of behavior by stating that "trait" refers to "relatively enduring patterns of behavior which can be expected to occur under a wide range of situations" (p. 61). They explained that it is "trait" theory which explains the inter-individual differences in people's perceptions and reactions to what appears to be the same situation. However, they added that behavior can be both situationally independent (or generalized) and situation specific, indicating the existence of both trait and state behavior.

An individual is more likely to have a relatively stable and enduring manner of reacting to situations which occur regularly and frequently than to situations that occur irregularly and infrequently. Thus, trait behavior may be defined in terms of behavioral patterns which occur when the individual is not encountering an infrequent or irregular life change or a large number of life changes. The Rahe (1972) Life Change Scale determines if a life change is major or minor. Rahe explained that irregular and infrequent life changes cause the greatest interruption of stability and, thus, are afforded a greater number of life change units (LCUs) on a scale from one to 100, whereas situations which occur regularly, to the extent that they are part of everyday occurrences, are not listed on the life change scale. This study postulates that when an individual experiences a major life change, or a situation which is not a daily occurrence, his dependence and independence levels change from trait levels to state levels. Of Rahe's life changes, illness and personal injury ranked sixth in terms of LCUs.

Hospitalization and surgery are also cited as stresses frequently elsewhere in the literature (Aguilera and Messick, 1974; Janis, 1958; Lederer, 1952; Parsons and Fox, 1964). The literature revealed that some theorists and investigators described changes in dependence and independence as the result of the stresses of illness, hospitalization, and surgery. Parsons and Fox indicated that life changes involved in adopting a "patient role" influence dependence levels because the inability to perform normal functions is partially legitimized inasmuch as the patient is "accorded the right to exemption and to care" because the illness is "not his fault" (pp. 31-45). Indeed, most changes mentioned in the literature concerned an increase in dependence without being specifically concerned with fluctuations in dependence and independence throughout the prehospitalization-postdischarge continuum (Rothberg, 1965; Warn, 1958). This study was conducted in an attempt to measure the fluctuations.

Method

Subjects. A longitudinal descriptive study was made of dependence and independence levels in 26 patients before and after hospitalization for surgery. Patients who were scheduled for either total hip or total knee replacement were used as subjects because the length of hospitalization would allow for administration of the scales five times with sufficient interval between each administration to discount the recall factor. In addition, patients who have one of these surgical procedures are similar in that they have had a long-term illness involving their ability to walk and the postsurgical recovery is equal in length.

The sample population was drawn by accepting, during a three-month period, every patient scheduled for total hip or total knee replacement who met the following criteria:

Was able to read and write English without difficulty
Was between 45 and 70 years of age
Was a planned admission, admitted two days prior to surgery
Lacked any of the first 14 life changes on the Rahe scale
Had a life change score under 300 LCUs
Had had no personal illness or injury in the last six months other than that which precipitated the surgery
Had surgery at a specific teaching and research medical center

No eligible person declined to participate in the study.

Permission from the hospital's Human Use Review Committee was obtained on grounds that: the rights and welfare of the subjects were adequately protected, risks to subjects were outweighed by potential benefits, and the informed consent of subjects would be obtained by adequate and appropriate methods.

Procedure. Dependence and independence levels were measured five times for each patient:

Prehospitalization–at home five to ten days prior to admission
Presurgery–in hospital one day presurgery
Postsurgery–in hospital third to fourth day postsurgery
Predischarge–in hospital 12 to 18 days postsurgery
Postdischarge–by mail four weeks postdischarge

Instruments. Four instruments were utilized.

The Three-Situation Questionnaire. The questionnaire, devised by the authors and Virginia Wittig, provides the

subject with three situations, proceeding from influences of minor to increased stress, and asks the subject what he would say or do, depending on the situation. Dependent and independent selections are provided in multiple-choice form.

Content validity was established by submitting the scale to a four-member panel of nurse researchers with expertise in the behavioral sciences. The panel was selected from the clinical medical-surgical nursing faculty and from the faculty in behavioral science at the University of California at Los Angeles on the basis of their willingness to serve. Agreement among the four panel members on the designation of responses in all three situations was 84 percent; this figure was calculated by including only those items on which there was complete agreement among the four judges. Of 70 items, only one had more than one panel member in disagreement. Because reliability has not been established for this scale, the results of this tool are not included in this article. Further work is being done on the instrument.

The questionnaire, however, was administered in the patient's home five to ten days prior to admission to the hospital in order to measure his dependence and independence levels in his own environment.

The Behavioral Checklist. This checklist, devised by the authors and Virginia Wittig, is an observational tool completed by a rater. It lists the ten component parts of dependence and independence denoted by Beller and gives examples of behavior under each component that may be observed by the nurse in caring for a hospitalized adult patient. Dependence subscales are: seeks physical contact; seeks proximity; seeks attention; seeks help (physical and psychologic); seeks recognition, praise, and approval. Independence subscales are: taking initiative; overcoming obstacles; persistence—trying to carry activities to completion in accordance with physical limitations and ability; getting satisfaction from work—seeks activity; and wanting to do things by oneself even when these things are beyond physical limitation or ability (tends to ignore or turn down help offered). The rater lists the frequency the behavior is exhibited within a given time period. In this study, the authors were the raters. To gather behavioral checklist data, they spent two hours in the morning giving care and helping with breakfast.

Content validity was established by the previously mentioned nurse-researcher panel. Agreement on all independence items was 96 percent; on dependence items, 90 percent. Again, only items on which there was complete agreement by all of the four-member panel were included in the percentage agreement calculation. No item had more than one person in disagreement with its designation. Agreements for the components were: physical contact, 75 percent; proximity, 100 percent; attention, 86 percent; help, 100 percent; recognition, praise, and approval, 89 percent; initiative, 100 percent; overcoming of obstacles, 100 percent; persistence, 100 percent; wanting to do something, 75 percent; wanting to do something by oneself, 100 percent. Interrater reliability among three nurse-researchers and one orthopedic nurse reached 95 percent.

The checklist was completed on the third or fourth postoperative day and on the 12th to 18th postoperative day (predischarge administration) to measure dependence and independence levels when the patient's physiologic capacity varied.

The D-I Scale. This scale lists 51 examples of the type of behaviors found in the Behavioral Checklist, based on Beller's theoretical construct, but does not confine itself to the hospital situation. The examples listed correspond to the ten components of dependence and independence. Items are operationalizations of Beller's definitions of dependence and independence into behaviors denoting dependence (thus seeking physical contact; proximity; attention; help; recognition, praise, and approval) and independence (taking initiative; overcoming obstacles; persisting; wanting to do something; wanting to do something by oneself). The subject rates himself on a one-to-five scale, according to the degree the example describes his present behavior, i.e., from "not at all," scored one, to "moderately" scored three, to "very well" scored five. The D-I is considered to have content validity since the behaviors for each component listed are pulled directly from the items of the Behavioral Checklist. An alternate form, administered to 25 patients, was used to test for reliability. The validity and reliability of the D-I were obtained by the authors and Virginia Wittig. The scale has content validity identical to that of the Behavioral Checklist. Reliability of the D-I was found to be: $r = .957$ for dependence, $r = .927$ for independence.

Examples of D-I Scale items are:

I put my arm around my friends, pat them on the back, or hold hands when we are conversing.
I feel comfortable when someone I am close to reaches out to hold my hand or pat me on the back when we are conversing.
I ask my friends or loved ones to stay with me or sit near me when I am depressed, upset, or in pain.
I carry pictures of my family or friends in my wallet, and look at the pictures when I am lonely or depressed.
It makes me sad when my friends have to leave, and I will ask them if they can stay a little longer.
I find myself describing my difficulties at length to friends.
I ask people I'm close to if they would do things for me, even though I could do it myself, such as getting me some aspirin for a headache.
I spend time reading about topics that I am interested in.
I refuse help offered for tasks I can perform myself.
Once I become involved in a project, I try to carry the project to completion.
I ask people to bend the rules so that I can do things my own way.
I refuse help offered by others, when other people notice that I'm taking on more than I'm capable of.

The Navran Dy Portion of the MMPI. The scale lists various examples of dependent behavior which the subject identifies as true or false as applied to him. The instrument was devised in 1958 by content validation of a 16-member judge panel and is pulled from other preexisting scales in the Minnesota Multiphasic Personality Inventory (MMPI). *T* scores as given in the MMPI handbook (Hathaway and Meehl, 1963) were recorded for each raw score. The reliability is .91 for 100 patients, using the Kuder-Richardson Formula 20 (Navran, 1954).

The D-I and Navran Dy Scales were administered five times:

Prehospitalization—to determine dependence and independence levels during a relatively low-stress period
Presurgically—to determine change in levels when hospitalized
Postsurgically—to determine change in levels after hospitalization and surgery

Predischarge–to determine change in levels after hospitalization, surgery, and some increase in physiologic functioning
Postdischarge–to determine change in levels after a return to the usual environment following hospitalization and surgery

Data Analysis. Dependence and independence levels were measured and evaluated for component parts, as well as for total dependence and independence scores. Data are presented in terms of changes in dependence and independence throughout the prehospitalization –postdischarge continuum, according to the time periods in which the constructs were measured.

Results and Discussion

Dependency. There were no significant differences in total dependence scores between the first and last administrations of the scales, indicating the possibility of a return to a trait level of functioning. Although at prehospitalization a reading of dependence was considered base line, this level may have been affected by an individual's awareness of impending hospitalization and surgery. There was a significant decrease in proximity ($p < .008$), indicating this assumption.

Physical contact, attention, and help components appeared to decrease at statistically insignificant levels, indicating that the prehospitalization levels may not have been true base lines. (See Table 1.)

From Prehospitalization to Preoperative Periods. Although there was no statistically significant change in total dependence scores, there was a significant increase ($p < .003$) in seeking recognition, praise, and approval. Perhaps an individual faced with impending life changes resulting from surgery seeks additional recognition, praise, and approval. He may also tend to seek this from those of whose sentiments he is unsure, explaining why levels in the hospital are elevated. Perhaps the taking on of the "patient role" also increases an individual's striving in this area.

In support of the significant findings, an increase, although statistically insignificant, was observed in the total dependence score recorded by the D-I. This trend may be attributed to the imposition of change of environment and routine through hospitalization and the imminence of surgery.

Preoperative to Postoperative. A statistically significant increase ($p < .05$) in dependence was depicted by the Navran Dy. This increase is believed to have been the result of physical, psychologic, and emotional stresses associated with the postoperative period. The patient's awareness of total dependence may have been more acute, and the patient may have viewed expression of dependence as socially more acceptable at this period. In addition, it is likely that when the client needs material assistance from others, he becomes psychologically dependent upon them as well.

The total dependence score on the D-I Scale also indicated an increase, though not statistically significant, in postoperative levels, supporting the above finding. The apparent increase in dependence was contributed by nonsignificant increases in the components, seeking physical contact and proximity. In addition, the increase in these components may be explained in that: the availability of helping personnel may have spontaneously satisfied their needs and physical contact and proximity may be comforting or reassuring to a biologically dependent individual. Perhaps the lack of significant increase in the total dependence D-I score stems from the insignificant decreases in two components: 1) attention and 2) recognition, praise, and approval. The decrease may be attributed to the primary need of the patient for rest and the lack of energy available for attention and recognition seeking. Recognition, praise, and approval was the only dependent component which was significantly lower postoperatively than predischarge.

The significant increase ($p < .004$) in the Dy dependence score from prehospitalization to postoperative supported previous interpretations, indicating that indeed something in the nature of the stresses of hospitalization and surgery increases an individual's dependence levels. A significant increase in physical contact ($p < .03$) in this time period lends support to the trends in physical contact changes described earlier.

Postsurgery to Predischarge. Although there was not a statistically significant change in Dy and D-I dependence scores, a significant decrease ($p < .004$) was recorded by the observational behavioral checklist. Perhaps more psychologic dependence was perceived by the patient while less dependent behavior was perceived by the observer. The decrease shown by the observational behavioral checklist was contributed primarily by the components physical contact ($p < .02$) and help ($p < .001$). The other components on the checklist revealed statistically insignificant decreases.

Table 1. Dependence Mean Scores on Navran Dy and D-I Scales and Behavioral Checklist at Five Times of Administration

Scale	Administration				
	Prehospitalization	Preoperative	Postoperative	Predischarge	Postdischarge
Navran Dy	5.00	5.05	5.20	5.15	4.75
D-I	1.20	1.24	1.29	1.30	1.07
Physical contact	1.20	1.55	1.60	1.50	1.00
Proximity	1.60	1.55	1.70	1.60	1.42
Attention	0.90	0.96	0.98	1.00	0.87
Help	0.85	0.84	0.84	0.80	0.71
Recognition, praise, approval	1.27	1.48	1.30	1.65	1.40
Behavioral checklist			8.14	3.28	
Physical contact			1.80	0.76	
Proximity			1.14	0.84	
Attention			0.80	0.54	
Help			6.38	3.72	
Recognition, praise, approval			0.20	0.11	

A statistically significant increase ($p < .04$) in recognition, praise, and approval, however, was indicated by the D-I. This was the only dependent component which exhibited a significant increase from the postoperative to predischarge period wherein the patient regained his health. This increase may have resulted from an increase in energy, allowing for more recognition seeking, and an overriding psychologic dependence of the individual upon the staff's and others recognition of his abilities to reassure himself he is recovering. The fact that the help component, which includes reassurance, was the only other component to increase supports this interpretation.

Total dependence D-I scores tended to increase because of the increases in help and in recognition, praise, and approval, as described above. Thus, dependence was relatively high predischarge when compared with the levels recorded at the time of the other administrations, even though the need for material assistance decreases as the body heals. Therefore, factors other than physiologic status must influence dependence levels. The increase may be explained by retention of the "patient role" while hospitalized and stresses present from anticipation of discharge and having to manage without medical and nursing help.

There was no significant change in total dependence scores from prehospitalization to predischarge; however, there was a significant increase ($p < .003$) in recognition, praise, and approval, supporting the above interpretations.

No significant changes were recorded by any of the tools in any of the components from preoperative to predischarge. The stress associated with the preoperative and predischarge periods may have been similar in nature in being anticipatory and the postoperative increase may have resulted from physical dependence which may allow for the patient's acceptance of psychologic dependence.

Predischarge to Postdischarge. A significant decrease in dependence was depicted by the Navran Dy ($p < .05$) and by the D-I ($p < .009$) (Table 1). This finding may be explained by the return to the client's normal environment, his progressive physical well-being, the absence of anticipatory stress associated with the previous periods of the continuum, and the relinquishing of the patient role as described by Parsons and Fox. Also, according to the Rahe scale, stress in terms of life change was comparatively low postdischarge. No individual in the study encountered any of the first 14 life changes on the scale or had a life change score of over 300.

The decrease in overall dependence was contributed primarily by significant decreases in components: physical contact ($p < .04$); proximity ($p < .003$); and recognition, praise, and approval ($p < .01$). These components may have been given satisfaction rather spontaneously at home, or the psychologic dependence may be less at this time because of reasons cited above.

The decrease depicted in components seeking attention and seeking help, being statistically insignificant, may indicate the individual's slower emancipation from physical than from psychologic dependence.

A significant decrease ($p < .04$) in dependence was recorded by the D-I from preoperative to postdischarge, suggesting the stress and anticipation of impending surgery may play a vital role in elevating dependence levels, especially if the postdischarge level is considered more base line than prehospitalization levels. There was also a significant decrease in physical contact ($p < .03$). All other components appeared also to decrease at statistically insignificant levels.

A significant decrease in dependence was recorded by both the D-I and Dy ($p < .02$) postoperatively to postdischarge, supporting above interpretations. The components contributing to the significant decrease on the D-I were physical contact ($p < .02$) and proximity ($p < .01$). As above, the components attention and help appeared to decrease; however, recognition, praise, and approval appeared to increase. Perhaps energy levels are so low postoperatively that it is unlikely for an individual to seek recognition, praise, and approval.

Independency. With the exception of taking initiative there were no significant changes in independence from prehospitalization to postdischarge (Table 2). The increase ($p < .04$) in this component may be accounted for by the same rationale for change as in the dependence levels between these two periods. Prehospitalization the client is subject to the stress of anticipation of hospitalization and surgery, and, thus, an independence base line is not obtained at this time. Also, the surgery may have been thought of as corrective and the individual expected his independence behaviors to somewhat increase.

Prehospitalization to Presurgery. No significant change

Table 2. Independence Mean Scores on D-I Scale and Behavioral Checklist at Five Times of Administration

Scale	Administration				
	Prehospitalization	Presurgery	Postsurgery	Predischarge	Postdischarge
Navran Dy	—	—	—	—	—
D-I	2.41	2.40	2.31	2.31	2.42
Taking initiative	2.39	2.37	2.24	2.45	2.80
Overcoming obstacles	2.54	2.32	2.45	2.05	2.75
Persistence	2.82	2.97	2.78	2.81	2.99
Wanting to do something	3.10	3.20	2.85	3.05	3.20
Wanting to do by oneself	1.60	1.02	0.95	1.01	1.00
Behavioral checklist			3.44	5.92	
Taking initiative			1.03	2.34	
Overcoming obstacles			1.46	1.33	
Persistence			2.23	3.46	
Wanting to do something			1.42	3.03	
Wanting to do by oneself			0.19	0.30	

was recorded in the total independence score or in the independence components. A statistically insignificant decrease in independence scores appeared, which, viewed within the same situational context as dependence, may indicate change of natural environment, imminence of surgery, and that the patient role limits one's feelings of independence. The decrease was contributed by three components: taking initiative, overcoming obstacles, and wanting to do something by oneself. However, there was a statistically insignificant increase in the components persistence and wanting to do something—which may come about from increased adrenalin production presurgery causing restlessness (Spielburger, 1966) and the need to complete unfinished business presurgery.

Preoperative to Postsurgery. No statistically significant changes in total independence scores occurred between these administrations; however, significant decreases in the components persistence ($p < .04$) and wanting to do something ($p < .05$) indicated independence was affected by the energy lack experienced after surgery because of the physiologic stress encountered and the taking on of a patient role. Initiative and wanting to do something by oneself also showed decreases, though not at statistically significant levels. Overcoming obstacles appeared to increase perhaps because so many little things become obstacles postsurgically.

Postsurgery to Predischarge. A statistically significant change did not occur in total independence scores on the D-I and Navran Dy; however, there was a statistically significant increase in independence recorded by the behavioral checklist ($p < .001$), indicating that an increase in physiologic well-being may be related to an increase in independence. The components taking initiative, persistence, and wanting to do something, as recorded by the behavioral checklist, increased significantly ($p < .001$). Nonsignificant increases were also recorded in the latter two components of the D-I. Since this period of the continuum is laden with residual disability and discomfort, attitudes of independence may have been below the perception threshold of the individual. Thus, a lack of increase in total dependence and overcoming obstacles may result from the difference between what the individual perceives and what he actually does.

There were no statistically significant changes in independence from prehospitalization to predischarge period with the exception of a significant decrease ($p < .04$) in overcoming obstacles which may be explained as lingering disability. In addition, many previously unanticipated obstacles may cause the patient to feel overwhelmed. All other components appeared to decrease only very slightly and not at a significant level.

Predischarge to Postdischarge. A significant increase ($p < .023$) in the D-I independence score appeared, which viewed within the situational context may be interpreted as: One's return to his natural environment and progressive physical well-being contribute toward his ability to exert and feel his independence. Components contributing to the increase were taking initiative ($p < .002$) and overcoming obstacles ($p < .011$). The components persistence and wanting to do something also contributed to the increase, although they were not statistically significant. Wanting to do something by oneself appeared to decrease although at a statistically insignificant level.

Taking initiative was the only component to show a significant increase ($p < .002$) from postsurgery to postdischarge. It seems reasonable to assume that initiative would be lower when the person was under the physiologic stress from surgery than when he has recovered physically and returned home. Increases, though not statistically significant, in components overcoming obstacles, persistence, and wanting to do something, plus no apparent change in wanting to do something by oneself, support this explanation. (See Table 2.)

Correlations between Dependence and Independence. When the total dependence and total independence scores on the D-I Scale were correlated, significant positive correlations were found with each administration of the D-I Scale ($r = .384$ to $.687$). Correlations of the dependence and independence component scores showed similar significant positive values. These results indicated that dependence and independence, as defined by Beller, are not bipolar, and the interpretation is in agreement with Beller's conclusion that dependence and independence in children are not opposite ends of a single continuum. However, Beller found a moderately negative ($r = -.53$) rather than a positive correlation. It seems reasonable that an increase in independence could at the same time be accompanied by an increase in psychologic dependence. In fact, a person who is psychologically dependent may exhibit more independence if his psychologic dependence needs are satisfied (Beller), just as the child demonstrates an increasing ability to dress himself or do other independent activities when his dependence needs are satisfied through recognition, praise, and approval. There may, however, be a difference between the correlation of dependence and independence in children and in adults. In addition, the specific group of patients tested, those with a long-standing illness, may have also influenced the direction of the correlation. Table 3 summarizes significant increases and decreases in dependence and independence scores on the Navran Dy, D-I, and Behavioral Checklist throughout the prehospitalization-postdischarge continuum.

Implications for Nursing. Dependence and independence in patients can be measured, as the Navran Dy Scale proved to be capable of discerning changes in dependence levels. That dependence and independence levels in this study were found to change with the stress of hospitalization and surgery provides knowledge of chronically ill patients' behavior in relation to dependence and independence changes along the prehospitalization-postdischarge continuum.

Nurses should consider these changes in dependence and independence in instituting nursing interventions and in planning patient teaching programs. The nurse, for example, can utilize the predischarge need for recognition, praise, and approval to increase independent behaviors in accordance with the patient's physical capabilities by utilizing recognition as a positive reinforcer for taking initiative and other independent activities. Also, as a result of a nurse's recognizing and adequately

Table 3. Summary of Significant Increases and Decreases in Dependence and Independence Scores as Measured by the Navran DY, the D-I, and Behavioral Checklist throughout Prehospitalization to Postdischarge Continuum[1]

Scales	Administration									
	Pre-hospital to Pre-surgery	Pre-surgery to Post-surgery	Post-surgery to Pre-discharge	Pre-discharge to Post-discharge	Pre-hospital to Post-surgery	Pre-hospital to Pre-discharge	Pre-hospital to Post-discharge	Pre-surgery to Pre-discharge	Pre-surgery to Post-discharge	Post-surgery to Post-discharge
Dependence										
Navran Dy		+(p <.05)		-(p <.05)	+(p <.004)					-(p <.02)
DI				-(p <.009)					-(p <.04)	-(p <.02)
Physical contact				-(p <.04)	+(p <.03)				-(p <.03)	-(p <.02)
Proximity				-(p <.003)			-(p <.008)			-(p <.01)
Attention										
Help										
Recognition, praise, and approval	+(p <.003)		+(p <.04)	-(p <.01)		+(p <.003)				
Behavioral checklist			-(p <.004)							
Physical contact			-(p <.02)							
Proximity										
Attention										
Help			-(p <.001)							
Recognition, praise, and approval										
Independence										
DI				+(p <.02)						
Taking initiative				+(p <.002)			+(p <.04)			+(p <.002)
Overcoming obstacles				+(p <.01)		-(p <.04)				
Persistence		-(p <.04)								
Wanting to do something		-(p <.05)								
Wanting to do by oneself										
Behavioral checklist			+(p <.001)							
Taking initiative			+(p <.001)							
Overcoming obstacles										
Persistence			+(p <.001)							
Wanting to do something			+(p <.001)							
Wanting to do by oneself										

[1] + = increase; - = decrease

satisfying a patient's dependency needs, the patient is more likely to resume independence, particularly during the immediate postsurgical-predischarge period.

Since polarity between dependence and independence does not seem to exist, independent behaviors may not always indicate more independence, and, therefore, less dependence in a patient. Thus, dependency yearnings may underlie overt independence. For example, a patient may seem physically independent, but at the same time be psychologically and emotionally dependent. Conversely, physical dependence may not always indicate psychologic dependence in the same person.

As for patient teaching, prior to hospitalization and surgery, patients' dependence levels are elevated; they are more likely to solicit help and be more receptive to advice or suggestions. Independence levels are not, however, so depressed that initiative taking and persistence, which can contribute to learning ability, are absent. Moreover, if independence-denoting behaviors are recognized and reinforced by the nurse, patient teaching may be extended beyond an information-giving context to a psychologic and physical rehabilitative context.

Findings regarding the trait and state theories show that dependence trait levels change into state levels during illness-hospitalization. Thus, high-trait dependence level persons, selected by the Navran Dy Scale, as well as low-trait dependence level persons, selected by the Navran Dy Scale, are affected alike by the effects of illness and hospitalization, as indicated by the D-I Scale. The approach to each group should be different, as suggested by Goldin *et al.* (1967), in that high-trait dependent persons need a firm but accepting-of-dependence attitude from the caring person, as anxiety is aroused in those persons if independence is overtly imposed. For low-trait dependent patients, recognition of instrumental (physicially necessary) dependence as being acceptable during early postoperative period is helpful. At the same time independence should be permitted and provided as far as possible for these persons as they progress through the postoperative period.

Nursing interventions used to alter maladaptive dependence or independence behaviors could be investigated further, based on findings of this study. This descriptive study lays the groundwork for experimental investigations regarding nursing interventions and their relationships to patient behavior during each phase of the prehospitalization-postdischarge continuum.

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SIX NURSES RECEIVE ANF RESEARCH GRANTS

Six grants of $5,000 each have been awarded by the American Nurses' Foundation to nurse investigators for projects to improve health and patient care. The grants were approved by the ANF Research Advisory Committee, and final funding was made by the ANF Board of Trustees.

Three investigations consider social implications: Jennie L. Bishop, R.N., University of Maryland, Baltimore, "The Relationship of Nurses' Ideologies to Membership and Professional Practice Unit to Activity in State Nurses' Associations"; Lois A. Monteiro, Ph.D., R.N., Brown University, Providence, Rhode Island, "The Involvement of Nursing in the Women's Rights Movement, 1890-1920"; and Evelyn K. Tomes, R.N., Meharry Medical College, Nashville, Tennessee, "Black American Nurses—An Investigation of Their Contributions to Health Services and Health Education."

Three investigations have experimental designs: Regina P. Lederman, M.Ed., R.N., University of Michigan, Ann Arbor, "Psychological and Physiological Correlates of Progress in Labor"; Virginia J. Neelon, Ph.D., R.N., University of North Carolina, Chapel Hill, "Properties of NA+-Dependent Active Sugar Amino Acid Transport by Preparations of Brush Border Membrane Vesicles from Hamster Jejunum: Changes Associated with the Aging Intestine"; and Mary Jane Smith, Ph.D., R.N., Ohio State University, Columbus, "Changes in Temporal Experience Resulting from Structuring the Auditory Environment for Individuals Confined to Bed."

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