

Enriching the Portrait Methodological Triangulation of Life-Closing Theory

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Some researchers promote a triangulated or multiple-methods approach in studies that examine complex human phenomenon. Nonetheless, problems abound in combining 2 dissimilar data sets from 2 different methodologies. One way that numerical and textual data can be merged is through a research method called statistical triangulation. The purpose of this article was to describe the statistical triangulation of a simultaneous, between-methods causal model and grounded theory investigation that explained psychological adaptation in dying persons. The statistical triangulation involved the analysis of selected patterns of dying from the grounded theory study with the variables used in the causal model investigation. A 1-way analysis of variance confirmed that the variables of social support, physical function, and religious preference impacted end-of-life patterns. Post hoc comparisons validated the conceptualization of 3 patterns of dying (becoming, anguishing/agonizing, avoiding) that emerged from the qualitative data. Although there are limitations to this analysis, statistical triangulation shows promise as a research method for enriching qualitative description. **Key words:** death and dying, hospice, methodology, palliative care, physical function, psychological adaptation, religion, research methods, Roy adaptation model, social support, spirituality, triangulation

IN the mid 1980s, nurse researchers began to promote a research paradigm that combines more than one method of inquiry in the same investigation.¹⁻⁴ Investigators who adopt this paradigm are termed *combinationists*, that is, they view the use of multiple methodologies as complementary to and supplemental to each other.¹ Those who adhere to a *combinationists* paradigm accept an epistemology that each method is “evaluated in terms of its particular merits and limitations,”^{1(p131)} and that equal value is placed upon the contributions of each method in explaining the results.^{4,5} Rossman and Wilson supported this approach when they noted that multiple methods should be

used in studies “attempting to understand social phenomena.”^{6(p631)} Consequently, the compelling reason for a multiple methods inquiry is the study of complex human behavior.

Above all, a multiple methods inquiry provides the opportunity to probe into the depths of human understanding. A second methodology is added to an investigative inquiry for the purpose of “adding breadth or depth to the analysis,”^{7(p33)} as well as “elaborating on the findings of the other method.”^{6(p632)} In fact, Fielding and Fielding noted that multiple instruments are useful in studies that examine “social phenomena and psychological constructs.”^{7(p29)} When the same phenomenon is approached from multiple perspectives, it provides the opportunity “to enrich our understanding by allowing for new and deeper dimensions to emerge.”^{8(p604)} With nurse researchers now investigating multifaceted human life processes and studying complex psychological

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constructs, a combined methods approach affords greater insight into one of these multifarious occurrences.

Historically, Campbell and Fiske⁹ provided the first technique for using multiple data sources in the same research study. Coming from a social science perspective, Denzin later clarified multiple method usage—now termed triangulation—when he noted that “it is convenient to conceive of triangulation as involving varieties of data, investigators, and theories, as well as methodologies.”^{10(p295)} In his explication, Denzin defined 4 basic types of triangulation: *Data* triangulation, with its 3 subtypes of time, space, and person; *Investigator* triangulation, which consists of using multiple rather than single observations of the same object; *Theory* triangulation, which consigns multiple rather than single perspectives in relation to the same set of objects; and *Methodological* triangulation, which entails within-method and between-method.^(p295) Rather than focus on data, investigator, or theory triangulation, the goal of this article was to describe a between-method triangulated investigation and its further analysis.

While Denzin¹⁰ gave a theoretical explanation of methodological triangulation (within-method and between method), Jick⁸ further refined this research approach by linking it to important research concerns: reliability and validity. In explaining these central tenets, Jick noted that when a researcher designs a within-method triangulated study, “multiple scales or indices focus on the same phenomenon,”^(8p603) and only one research methodology is selected for the inquiry. With only one method used, and with the study’s measures centered on one phenomenon, a within-method approach assures reliability.⁸ In contrast, different research methodologies are used with between-method triangulation. While the instruments in a between-method study still capture the same phenomenon, the goal is to obtain external or convergent validity.⁸ In this method, the researcher’s ability to view the same phenomenon from different research paradigms supports exter-

nal validity. As noted by Denzin and Jick, in a between-method study the “flaws of one method are often the strength of another,”^{10(p302)} and the use of complementary or multiple methods assures greater validity⁸ and strengthens the results.

A nursing study on adolescent hopefulness that utilized a between-method triangulated design exemplifies external validity. In the qualitative component of Hind’s study,¹¹ adolescents verbalized content across 3 time periods that indicated “the direction of change in hopefulness”^{11(p446)} as quantified on a measurement tool. As a result, both the qualitative and the quantitative results of Hind’s research supported “a process of change in adolescent hopefulness.”^{11(p445)} In contrast, Bagagliotti and Trygstad’s between-method triangulated study¹² on work-related stress and coping in staff nurses reported divergent rather than convergent findings. The qualitative part of this study provided rich description of the “working relationships with unit staff”^{12(p171)} as nurses’ highest stressor, whereas the quantitative findings reported that management issues created the most stress for staff nurses. And so, the divergent or different workplace stressors that were identified in Bagagliotti and Trygstad’s studies provided 2 separate findings, as well as pathways for further study. Therefore, in methodological triangulation, whether the goal is assuring reliability, converging data and supporting external validity, or providing greater description, the research question drives the chosen method.¹³ In the end, the important points to ponder in considering methodological triangulation are the following: Is the research question theoretically focused?⁷ Can the research question be answered in a reliable and valid way?² Is the integrity of each research paradigm protected?⁵

In spite of the call for research studies that employ methodological triangulation,¹⁻⁴ few empirical explications appear in the literature. Mitchell³ noted the difficult task of figuring out the contribution of each method to the results. She also identified the inherent problems in combining 2 completely different sets of data: one that records numbers and

one that accounts words. Polit and Beck¹⁴ report on another concern that centers on publishers' reluctance to combine both a quantitative and a qualitative analysis in the same article. In lieu of these dilemmas, the most critical issue facing between-method triangulation is the assurance that the epistemological foundation of each research paradigm is not violated.¹⁵ Nonetheless, there is one way that nurse researchers can reconcile these concerns and ensure that "theoretical models connect with and complement, rather than compete with one another."^{16(p101)} This approach is Mitchell's³ 2-pronged conciliatory method: (1) building a conceptual triangulation model and (2) completing statistical triangulation.

CONCEPTUAL TRIANGULATION

Foster⁵ delineated Mitchell's³ notion of a conceptual triangulation model in a 5-step procedure that is "designed to achieve a more complete and contextual portrayal of the phenomenon of interest."^{5(p4)} This process involves conducting qualitative and quantitative research true to the paradigmatic assumptions of each method, distinguishing pertinent results within each method, examining confidence in the results, developing criteria for inclusion of the results in the conceptual model, and then constructing one or more conceptual models.^{5(p4)} When a researcher constructs a conceptual triangulation model, the integrity of each research paradigm is assured by "fitting the results of each study into a cohesive and coherent outcome or theory, or confirming or revising existing theory."^{13(p121)} Some examples of the first method are De Vito Dabbs et al's report¹⁷ on symptoms following acute rejection after a lung transplant and Foster's work⁵ on nurses' assessment of pain in children.

STATISTICAL TRIANGULATION

The second way to blend 2 distinct data sets from 2 different research methodologies

is to merge the results by way of a statistical approach.³ Mitchell noted that a "statistical approach includes the analysis of those significant variables identified as theoretically important by either the qualitative or quantitative approach by combining them into an appropriate test."^{3(p25)} Although examples of conceptual triangulation are now appearing in the literature,^{5,17} no reports of the statistical triangulation of qualitative patterns and quantitative results have been found. Therefore, the purpose of this article was to describe the statistical triangulation of a simultaneous, causal model (quantitative) and a grounded theory research study (qualitative) that explained psychological adaptation in dying persons. Selected patterns of *self-transacting* dying that emerged from the grounded theory study¹⁸ were analyzed by way of statistical triangulation with the same person-environment variables that were used in the causal model study.¹⁹

METHODS

The simultaneous studies

During the design phase, the investigator pilot tested an instrument that was developed to measure psychological adaptation in dying.²⁰ Within the context of this small pilot study, it was discovered that participants responded frequently to selected items in the measurement tool and that they also displayed different behavioral reactions to several questions that were included in the measure. To capture the complexities surrounding these phenomena, the researcher decided to add a qualitative methodology, with the aim of supplementing the quantitative, causal model. The causal model was designed to test several person-environment variables (physical function, pain, social support, length of illness, sex, and age), as they influenced an outcome of psychological adaptation.¹⁹

The supplementary qualitative component had an aim to identify, through the participants' reactions and cognitions, their insights into these person-environment variables.¹⁸ A

grounded theory design was chosen for the qualitative portion of the study as the goal was to "generate a theory that accounts for a pattern of behavior which is relevant for those involved."²¹(p91) The measurement tools that were used in the causal model study guided the qualitative exploration. The items in the measurement tools "evoked many comments and strong reactions,"¹⁸(p154) whereby "one form of data collection technique informs or guides the use of another kind."²²(p251) At the end of each testing session, all participants were asked the same open-ended question: What comments do you have about the questions? Although the measurement tools gave structure to the grounded theory study, the participants controlled their own responses, clarified their own personal meanings, avoided certain reactions, and detailed their own descriptions. Hence, for this particular between-method investigation, the 2 different paradigms opened a wider window into human experience, and afforded a greater opportunity to study how human-environment influences are integrated²³ in life-closing situations.

Although Morse¹³ cautioned against using the same set of subjects in a between-method study, as the quantitative measures utilized a nonprobability, convenience sample, the same group of subjects participated in the causal model and the grounded theory studies. The inclusion criteria for the participants were as follows: (1) current signed hospice consent; (2) 30 years of age or older; (3) English-speaking; (4) evidence of cognitive function (able to give informed consent); and (4) consent to participate.

For the simultaneous, between-method studies, the total sample of 97 participants included 58 males and 39 females, with a mean age of 65.7 years and a mean length of illness of 22.0 months. The diagnoses of the 97 participants were as follows: cancer ($n = 76$), acquired immune deficiency syndrome (AIDS) ($n = 10$), amyotrophic lateral sclerosis (ALS) ($n = 6$), and other terminal, end-stage diseases ($n = 5$). The procedures used to sample this vulnerable population and to assure that

informed consent was secured is detailed in other published reports.^{18,19,24}

The causal model study

Because the purpose of the quantitative study was to "examine the effects of selected person-environment variables as they influenced psychological adaptation in home hospice patients,"¹⁹(p712) the causal model study was built on an adaptation nursing framework.^{25,26} According to adaptation nursing theory, 3 classes of stimuli (residual, contextual, focal) influence an individual's adaptive response. The residual stimuli are presumed to influence behavior, but their "effect cannot be validated,"²⁶(p74) the contextual stimuli are evident in the immediate condition, and the focal stimulus "is the internal or external stimulus most immediately confronting the human adaptive system."²⁶(p73) For the causal model study, the person-environment variables were arranged into these 3 classes of stimuli. All the predictor variables of age, sex, length of illness, social support, pain, and physical function were entered into a linear, time-ordered multiple regression analysis. This analysis started with the residual variables (age, sex, length of illness), was followed by the contextual variables of pain and social support in the next timeframe, moved to the focal variable (physical function), and ended with psychological adaptation as the final outcome variable. For the causal model study, only the demographic variables of age, sex, and length of illness were entered into the multiple regression analysis. A more detailed explanation of the theoretical framework, the causal model design, and the predicted, hypothesized relations appears in a published report.¹⁹

The tools used in the causal model study included 2 measurements of the outcome variable: The Life Closure Scale (LCS),²⁰ which assessed psychological adaptation, and the Affect Balance Scale (ABS),²⁷ which measured psychological well-being. Physical function was measured by the Karnofsky Performance Scale (KPS),²⁸ and pain influences

were assessed by the McGill-Melzack Pain Questionnaire (MPQ).²⁹ Social support was measured by the Personal Resource Questionnaire-85 (PRQ),^{30,31} with data about age, sex, and length of illness collected in the demographic information. As noted in the previously reported study,¹⁹ all the measurement tools demonstrated sound psychometric properties, which addressed quality issues relating to reliability and validity.

The time-ordered, multiple regression analysis of the person-environment influences identified 3 significant variables that accounted for most of the explanatory value.¹⁹ With a significance level set at P less than .05 and criterion levels of less than 0.10 established for the path coefficients, 3 variables accounted for most of the explanatory value. Social support with a β of .503 ($P < .001$) was a powerful predictor of psychological adaptation. Likewise age ($\beta = .237$, $P < .01$) was a positive, direct predictor of the outcome variable. With an inverse relationship, pain ($\beta = -.185$, $P < .05$) also explained an outcome of psychological adaptation.¹⁹ Physical function did not reach significance ($P < .07$), and sex had no predictive value. Length of illness had only a direct effect on physical function ($\beta = -.100$), but did not affect the outcome of psychological adaptation. As a result, the quantitative study supported the findings that older persons with less pain and with social support experience greater psychological adaptation in dying. The causal model testing did not support the impact of physical function, length of illness, or gender on the outcome variable.

The grounded theory study

The aim of the qualitative study was to explore "the reactions and cognitions of dying persons, and to describe the influences that impact this phenomenon in home hospice patients."^{18(p153)} The central construct that emerged from the qualitative data was *self-transacting* dying.¹⁸ Self-transacting dying represented "higher and lower patterns of social-psychological integration that reflected the cognitions, feelings, and mean-

ings of one's death."^{18(p151)} A core concept termed *integrating forces* shaped the 7 patterns of self-transacting dying. With its categories of interpreting meaning, bodily feelings, connecting others, weighing expectations, adjusting expectations, and sustaining tasks, the "integrating forces included the social-psychological processes as well as the physical factors that influenced a person's dying."^{18(p156)} Another core concept that emerged from the qualitative study was the *moving-template*, which explained the "conflict between the positive and the negative forces of the inner self and the outer influences of the environment."^{18(p157)} The dialectical movement of the integrating forces, along the moving-template, formed the 7 patterns of self-transacting dying.

The 7 patterns of self-transacting dying that came forth in the grounded theory study were as follows: transcending, becoming, reconciling, agonizing/anguishing, avoiding, relinquishing, and repressing. In explanation, *becoming-self* was a pattern of dying in which individuals "directed their cognitions and feelings toward capturing the most possible from their situation before death claimed them."^{18(p159)} For example, in the category of connecting others, a *becoming-self* revealed multiple sources of support, as well as a relationship with a Higher Power or a Supreme Being who was greater than oneself.¹⁸ In contrast, in this same category, an *avoiding-self* disclosed few or no sources of social support or connectedness to others. As the investigator did not want to introduce any bias into inducting the qualitative data, although both studies were performed simultaneously, the grounded theory study was completed prior to the multiple regression analysis. Similar to the published quantitative report, a more detailed explanation of the emerged theoretical framework and pattern descriptions appears elsewhere.¹⁸

Statistical triangulation

In keeping with the premise set forth by Polit and Beck¹⁴ who noted publishers'

reluctance to merge triangulated studies into one single publication, the quantitative and qualitative studies were published separately. Nonetheless, it became evident that the 2 separate studies in the between-method design needed to be integrated into some kind of a unified whole. Thus, the goal of statistical triangulation was to support the conceptualization of the patterns of self-transacting dying as they emerged from the qualitative data. To accomplish this purpose, the 2 data sets were merged by way of statistical triangulation through a 1-way analysis of variance (ANOVA) for independent groups.

Although not published in the qualitative study, a record was kept of the number of participants in each of the 7 patterns of self-transacting dying.³² The number of participants recorded in each of the 7 patterns was as follows: transcending (2), becoming (15), reconciling (37), anguishing/agonizing (19), avoiding (13), relinquishing (7), and repressing (4).³² This numerical link between the 2 data sets provided a unit of analysis or a means by which the numerical and linguistic data could be merged and then analyzed. To assure equal variance among the independent groups, only the 3 patterns of self-transacting dying that most closely approximated each other were selected for the 1-way ANOVA testing. These 3 groups were the becoming-self (15 participants), the anguishing/agonizing-self (19 persons), and the avoiding-self (13 individuals), with a total of 47 participants entered into statistical analysis. As required for any secondary analysis, the Human Subjects Division of the researcher's sponsoring university approved the statistical triangulation.

The mean ages for the 3 groups were as follows: becoming, 65.4; anguishing/agonizing, 54.5; and avoiding, 59.7. In terms of gender, 2 of the 3 groups had similar representation. The becoming group reported 8 males and 7 females, and the anguishing/agonizing group included 10 males and 9 females. There were a larger number of males ($n = 10$) as compared to females ($n = 3$) in the avoiding pattern. The average length of illness for the becoming-self was 20.6 months,

the anguishing/agonizing-self reported 15.4 months, and the avoiding-self recorded 17.8 months. The ethnicity of each group was predominately Caucasian. The becoming pattern included 12 Caucasians and 2 Mexican Americans, the anguishing/agonizing included 18 Caucasians and 1 other, and the avoiding included 12 Caucasians and 1 Mexican American. The diagnoses for the becoming group were 13 with cancer and 2 with end-stage cardiac disease. In the anguishing/agonizing group, there were 14 with cancer, 3 with AIDS, 1 with end-stage cardiac disease, and 1 with ALS. The diagnoses for the avoiding group were 11 with cancer, 1 with AIDS, and 1 with ALS. According to their religious preference, 10 Protestants, 4 Catholics, and 1 other made up the becoming group; 7 Protestants, 6 Catholics, and 6 other made up the anguishing/agonizing group; 10 Protestants, 2 Catholics, and 1 other made up the avoiding group.

A 1-way ANOVA statistical computation tested the main effects of physical function, social support, pain, and psychological adaptation and well-being for the 47 participants in the 3 selected patterns of dying (becoming, anguishing/agonizing, avoiding). The categorical variables of age, gender, length of illness, marital status, religious preference, education, and race were also computed for these 3 independent groups. A significance level of P less than .05 was established for the analysis, with the categorical variable of religion ($F = 3.59$, $P = .03$) reaching significance.

Other than religious preference, there were no statistical differences among the groups for the other demographic or categorical variables. The results of the ANOVA analysis for the categorical variables are listed in Table 1.

The results of the ANOVA analysis of the predictor variables (pain, social support, physical function) and the outcome variable (psychological adaptation) that were tested in the causal model found statistical differences among the 3 groups for the following variables: physical function as measured by the KPS ($F = 7.28$, $P = .002$) and social support

Table 1. One-way analysis of variance of demographic data

Categorical variables	df	F	Significance
Sex			
Between groups	2	1.05	.340
Within groups	44		
Age			
Between groups	2	2.592	.086
Within groups	44		
Marital status			
Between groups	2	0.092	.912
Within groups	44		
Religion			
Between groups	2	3.598	.036*
Within group	44		
Length of illness			
Between groups	2	0.342	.712
Within group	44		
Education			
Between groups	2	0.391	.679
Within groups	44		
Race			
Between groups	2	0.177	.839
Within groups	44		

* $P < .05$.

as assessed by the PRQ ($F = 4.30$, $P = .02$). The results of the ANOVA analysis for these measurement tools are depicted in Table 1. Post hoc tests determined that the 15 participants in the becoming group scored significantly lower on the KPS than did the avoiding group. The becoming group also scored significantly higher on the PRQ than did the anguishing/agonizing group. Post hoc tests showed that the becoming group's religious preference was statistically different from that of the anguishing/agonizing group. The anguishing/agonizing group's religious preference was statistically different from that of the avoiding group, and its KPS score was significantly lower than that of the avoiding group.

DISCUSSION

The results of this statistical triangulation supported 3 of the 7 patterns of self-

transacting dying that emerged from the qualitative data. For those in the pattern of the becoming-self, although their KPS score was lower than that of those in the avoiding group (a lower score indicates decreased physical function), a higher social support score converged with the causal model finding in which social support was a highly significant predictor of psychological adaptation in death and dying.¹⁹ As measured by the PRQ, participants who score in the upper ranges on this tool perceive high levels of intimacy, social interaction, worth, and assistance that they receive from others.^{30,31} The finding that those 15 participants who were conceptualized as the becoming-self viewed their social support in a favorable light validates the result of the multiple regression analysis. With a β of .503 ($P < .001$), the variable of social support was a potent predictor of psychological adaptation in dying persons. Thus, through statistical triangulation, the influence of social support converged with the becoming-self's description of connectedness to others and to a Supreme Being.³³

Those in the pattern of the becoming-self spoke about their "connections to significant others, family, friends, and their hospice staff."^{33(p139)} In spite of diminished physical capacity, as evidenced by lower KPS scores, individuals in the becoming-self group replaced physical motion with cognitive activity as they "focused on inner self-directing activities"^{33(p138)} and actively sought social connections.³³ With social support now thought of as coping assistance,³⁴ professionals' knowledge about the impact of this variable in life-ending situations is vital. Nonetheless, most research on social support in life-threatening illness focuses on caregivers rather than care receivers, and tends to emphasize psychological distress rather than more positive aspects such as psychological adaptation.

In one study of 256 terminally ill cancer patients, Kelly et al³⁵ reported that individuals with lower levels of social support and less satisfaction with their support system wished to hasten death. In this same study,

Table 2. One-way analysis of variance of causal model tools

Measurement tools	df	F	P
Karnofsky Performance Scale			
Between groups	2	7.286	.002*
Within group	44		
McGill-Melzack Pain Scale (total score)			
Between groups	2	1.277	.289
Within groups	44		
Bradburn Affect Balance Scale (total score)			
Between groups	2	2.783	.073
Within groups	44		
Life Closure Scale			
Between groups	2	0.686	.509
Within groups	44		
Personal Resource Questionnaire			
Between groups	2	4.305	.020*
Within groups	44		

* $P < .05$.

patients' physical symptoms were less significant in predicting wished to hasten death than were their psychosocial influences. Kelly et al noted that these psychosocial variables included the cohesiveness of the family unit, the number of social supports, satisfaction with social support, and perceived burden on others. Similarly, O'Mahoney et al³⁶ found that cancer pain severity, as moderated by physical function and a perceived absence of social support, is related to a desire to hasten death. Still another study found that social support is a significant, direct predictor of negative affect in nonhospitalized cancer patients, as measured by physical isolation, avoidance coping, and suppression of emotions.³⁷ Consequently, in life-threatening situations and terminal illness, individuals who perceive that they lack social support and who are less satisfied with their support want to hasten the dying process. Responses from the 19 individu-

als who were conceptualized in the pattern of the anguishing/agonizing-self in the grounded theory study¹⁸ support these findings.

In terms of their social support, individuals conceptualized in the anguishing/agonizing-self pattern spoke of their diminished ability to relate to others. For instance, a person in this pattern remarked, "We don't let friends come over anymore."^{18(p161)} Furthermore, individuals in this pattern also expressed their desire to hasten death, as well as psychological distress. In a study on palliative sedation that was used to relieve psychoexistential distress, Morita³⁸ reported that isolation and lack of social support were causative factors of this outcome. In addition, a high level of social support was related to less hopelessness in a study of cancer patients.³⁹ In studying participants with life-threatening conditions, Chibnall et al⁴⁰ found that greater death distress was associated with lack of social support. Individuals in Chibnall et al's study also expressed lower spiritual well-being. Hence, for individuals in the anguishing/agonizing group their perceived lack of social support, confirmed by a lower PRQ score in the ANOVA testing, provides evidence for this pattern of dying as emerged from the qualitative data.

For those in the avoiding group, other than the fact that their religious preference was different from that of those in the anguishing/agonizing group, and that their KPS scores were higher than those of those in the becoming and anguishing/agonizing groups, there was little else that distinguished them. As noted in the qualitative results,¹⁸ there was little disclosure among these 13 participants. Although more males ($n = 10$) than females ($n = 3$) were represented in the avoiding pattern, no significant gender differences were found with the ANOVA test. However, the different religious preferences found in this group as compared to the other 2 groups may have had an impact and should be noted.

Even though spirituality in life-threatening situations is now receiving more attention in the empirical literature,^{41,42} the effect of this influence is in the beginning stages of exploration, and its impact in end-of-life situations

remains unclear. While findings from one study suggest that higher levels of spiritual well-being relate to less end-of-life despair, hopeless, and desire for hastened death,⁴³ another found no impact of religion or spirituality on cancer progression and mortality.⁴⁴ Even less is known about the influence of religious preference on end-of-life situations. In a survey of the general population, Ellison⁴⁵ found that life satisfaction varied by different denominations of religious groups. Although the variables of spirituality or religion were not included in the causal model study, with differences in religious preference reported in the present ANOVA analysis, this influence warrants further exploration in end-of-life situations.

LIMITATIONS

This statistical triangulation of the grounded theory patterns with the causal model variables provided greater theoretical completeness and assured more confidence in the findings.⁴⁶ As depicted in the respective patterns of self-transacting dying that emerged from the grounded theory study, there was a positive convergence of social support with the *becoming-self*, a negative convergence of this same variable with the *agonizing-self*, and a lack of convergence with the *avoiding-self*. Thus, this statistical triangulation confirmed the conceptualization of these 3 patterns of self-transacting dying as influenced by social support. Nonetheless, there are several limitations to this secondary analysis that weaken external validity. Most important, a basic assumption of ANOVA testing is that the groups are equal in variance and that they pass the test for homogeneity of variance.⁴⁷

The variable of social support failed the test of homogeneity of variance; thus the convergence of this variable must be interpreted with caution. Even though there were significant differences among the groups in their religious preference, this influence must also be interpreted cautiously. Religious prefer-

ence is a categorical variable or demographic influence and this influence also did not meet the test for homogeneity of variance. Although the variable of physical function did meet the test for homogeneity of variance, this finding too has limitations. With a *P* less than .07 that just missed significance in the causal model study,³² it was conjectured that the KPS was not precise to measure this variable in end-of-life populations.¹⁹

Furthermore, the small number of participants in each of the 3 groups that were entered into ANOVA testing limits the findings. Although Cohen's⁴⁸ power analysis was performed to determine the number of subjects in the causal model study, the number of participants who emerged in the grounded theory groups could not be predetermined. Hence, the influence of the variables on the larger number of participants in the reconciling group, as well as the smaller number of individuals in the other 3 groups (transcending, repressing, relinquishing), remains unexplored. And so, confining the analysis to only 3 of the 7 patterns of self-transacting dying is a limitation of this statistical triangulation. While this analysis was specific to a grounded theory design, another qualitative design that yields linguistic data, to which numbers could be affixed, would support methodological triangulation.

Nonetheless, with the purpose of statistical triangulation being to show the "strength or direction between variables,"^{3(p25)} and the goal of triangulation being to "increase the researchers confidence so that the findings may be better imparted,"^{7(p25)} this methodological triangulation accomplished its objective. The results give confidence to the patterns' conceptualizations and they enrich the descriptions of self-transacting dying as inducted from the qualitative data. The current analysis also validates the strength of social support as an end-of-life influence as supported in both the qualitative and quantitative results. This secondary analysis points to the need for further research on religious preference and spiritual aspects as they impact life-threatening illness. As Jick noted,

when used with a quantitative method, qualitative findings "enrich and brighten the portrait."^{8(p609)} This statistical triangulation was

an attempt to enrich one end-of-life portrait, with the hope that this picture is somewhat clearer in context.

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