
Assessing Readiness for Change: A Novel Application of the Transtheoretical Model of Health Behavior Changes in a Pre-Renal Insufficiency Clinic

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The transtheoretical model of health behavior change was applied by a social worker in a Canadian pre-renal insufficiency clinic as a method to facilitate and support the behavior change required by patients to initiate renal replacement therapy. A chart review of 102 patients was undertaken to determine the ratio of patients in various stages of change and determine the statistical relationship between stages of change, activities of daily living and demographic characteristics. Major findings revealed a significant correlation between stages of change and activities of daily living and stages of change and age. Future research should focus on developing a standardized staging tool for this population. Implications for social work practice are discussed.

INTRODUCTION

End Stage Renal Disease (ESRD) and renal replacement therapy (RRT) have immense psychosocial implications. According to the Canadian Association of Nephrology Social Workers (2005), the person with ESRD is faced with “role adjustment” and changes that can affect all aspects of their lives, ranging from emotional, vocational (work), financial, sexual and physical. Often people feel “numb” or in disbelief when diagnosed. The Renal Management Clinic at the Toronto General Hospital is multi-disciplinary clinic, located in a large urban multi-cultural Canadian city. Its mandate is to manage the initiation of RRT for people with ESRD (Giles, 2004). Each patient who is seen at the team clinic is assessed and followed by a renal social worker until they have made the decision to initiate 1 of the 5 RRT options, which include: no treatment, day or evening hemodialysis, peritoneal dialysis or kidney transplantation. The purpose of the assessment is to identify the patient’s treatment goals and provide counseling, support and education that will facilitate them in realizing their goals. This includes identifying and assisting in overcoming (where appropriate) any barriers to obtaining their goals.

To assist the patients and health care team with facilitating the patient behavior changes required to initiate treatment, a novel application of the transtheoretical model (TTM; Prochaska, 1995; Prochaska & DiClemente, 1982; 1983) and motivational interviewing (MI; Berg-Smith et al., 1999; Emmons & Rollnick, 2001) was applied to social work assessments.

Within this framework, an understanding of patient motivation and the ability to use MI are central to assisting the patient with achieving the behavior changes required for life-altering treatment decisions. This motivational style of assessment and interviewing is

based on the stages of change model (Prochaska, 1995; Prochaska & DiClemente, 1982; 1983), which provides clinicians with “... conceptual framework for understanding the process of individual behavior change” (Berg-Smith et al., 1999, p. 399). By staging each patient, social workers and other members of health care team can plan and tailor MI interventions based on each stage, thereby respecting and supporting each patient’s personal and psychosocial processes.

Prochaska’s stages of change concept is widely used by clinicians and researchers in several other fields, such as addictions, diet and physical activity. However, a careful search of Medline, CINALH and psycINFO databases failed to reveal any research that has applied the stages of change conceptual framework to pre-RRT ESRD patients.

TTM OF CHANGE AND MI

The goal of utilizing the TTM in the context of the Renal Management Clinic (RMC) is to provide medical information and psychosocial interventions in a patient-centered context that will support patient as they move toward making a decision to initiate RRT-based decisions. According to Christensen and Ehlers (2002), ESRD patients face an extreme loss of personal control as the diagnosis “... entails a variety of chronic, recurrent stressors, significant change in lifestyle, disruption of familial roles and social identity, and threatened personal control” (p. 717). Therefore, within the context of social work psychosocial assessment and intervention, the stages of change allow for recognition of the difficult and complicated psychological process of adjustment necessary to facilitate the behavior change required to initiate RRT. The TTM construct, although not applied in RRT, has received empirical support in other health-related behavior change studies on topics such as smoking cessation, exercise, dietary

compliance (Prochaska et al., 2005) and medication adherence (Erickson & Muramatsu, 2004).

According to Prochaska et al. (2005), the TTM, or stages of change, integrates four theoretical constructs central to change (p. 137):

1. Stage of change: Intention to take action
2. Decisional balance: Pros and cons associated with behavior's consequences
3. Self-efficacy: Confidence to make and sustain changes in difficult situations
4. Processes of change: 10 cognitive, affective and behavioral activities that facilitate change

Prochaska (1995) argues that change unfolds over a series of six stages: precontemplation, contemplation, preparation, action, maintenance and termination (p. 408). However, in the context of the RMC only the first four stages are utilized to assess patients' motivation and emotional readiness for change: precontemplation, contemplation, preparation and action. According to Prochaska (1995),

stages are fundamental to understanding change because the concept of stages provides a temporal dimension, and change is a phenomenon that unfolds over time ... stages are dynamic ... but unlike states they do not change so easily and thus require special efforts or interventions. (p. 409)

Pre-contemplation is the stage at which a person has no intention of changing behavior in the foreseeable future. Many individuals in this stage are "unaware or under aware of their problems" (Prochaska, 1995, p. 409). In a study of healthy eating in diabetes patients, Vallis et al. (2003) found that pre-contemplators were "the most heterogeneous group and that they may benefit most from individual interventions."

The next stage in the model is contemplation. In this stage, people are aware that a problem exists and are seriously thinking about overcoming it but have not yet made a commitment to take action (Prochaska, 1995, p. 409). According to Prochaska et al. (2005), "contemplators continue to overestimate the costs of changing and, therefore, are ambivalent and are not ready to take action" (p. 138). The next stage in the continuum is preparation. Preparation is a combination of intention and some attempt at behavior change, as well; individuals in this stage are intending to take action immediately (Prochaska, 1995, p. 410). The final stage that is relevant in the context of the RMC is action. Action is characterized by actual behavior changes; individuals modify their behavior, experiences and/or environment in order to overcome their problems (Prochaska, 1995, p. 410).

More recently, MI, which is based on the TTM, has been used with a variety of behaviors such as smoking, medication compliance, diabetes management and HIV/AIDS risk reduction (Emmons & Rollnick, 2001, p. 68). Originally developed by specialists in the addictions field, MI was designed to help therapists and counselors avoid making inappropriate assumptions regarding their clients behavior changes (Emmons & Rollnick, 2001, p. 69). MI provides practitioners an opportunity to explore the process of behavior change and approach assessments from a truly client-centered perspective. MI and TTM are, thus, patient-centered approaches because they help reduce the pressure to change experienced by the patient, and fears that are associated with that pressure. By reducing external pressure, a patient's fear may give way to the insight needed to move from one stage to the next.

MI and the stages of change model have been simplified and adapted for use with patients in brief clinical encounters, such as dietary adherence (Berg-Smith et al., 1999, p. 399). The results of using a simplified stages of change model in dietary adherence among adolescents, showed promising results in that 127 adolescents, who attended an initial in-person motivational intervention session and follow-up counseling sessions, had a statistically significant reduction in calorie and fat intake (Berg-Smith et al., 1999, p. 407). MI may be of assistance with the RRT population because many clinicians start with behavior change requests that are action-orientated and then wonder why the patient is "non-compliant." For example, they may tell a patient that they need to start RRT immediately, even though the patient does not feel ready. This, in turn, may lead to a breakdown in the therapeutic relationship because both clinician and patient do not feel understood by each other.

RESEARCH QUESTIONS

This study's central aim was to describe the ratio of patients in the various stages of change. The secondary aim was to see if there were any relations between the patients, assessed stages of change and other demographic and psychosocial variables. According to Christensen and Ehlers (2002) "a diagnosis of ESRD entails a variety of chronic, recurrent stressors, significant change in life-style, disruption of familial roles and social identity, and threatened personal control" (p. 717). Therefore, it was expected that these psychosocial factors would weigh heavily on individual decisions to consider RRT. Consequently, it was hypothesized that those who were not independent with activities of daily living (ADLs) would be less likely to be in the prepa-

ration or action stages of change. Additional research questions centered on whether demographic variables such as age, gender or English as a first language would be associated with stages of change.

METHODS

Design

The methodology for this project involved using a retrospective cross-sectional statistical analysis of variables identified in the RMC social work assessment notes. This method is described as practice-based research (PBR), which Epstein (2001) defines as “the use of research-inspired principles, designs and information gathering techniques within existing forms of practice to answer questions that emerge from practice in ways that inform practice” (p. 17).

Data Collection

All of the data for this research was collected by a single renal social worker, which Epstein (2001) maintains will enhance the validity and reliability of the research as the workers are the most familiar with the cases (p. 29). The data were collected over a 3-year period, beginning in August 2002, in which 102 patients were assessed by the social worker. According to Epstein et al. (1997), the advantages of using retrospective practice data include the fact that “it is less intrusive to patients and staff ... Daily patient care routines are less likely to be disrupted when data collection focuses on available record documentation” (as cited in Dobrof et al., 2001, p. 108).

All of the data were collected during initial social work assessments and recorded on a standardized RMC Social Work Initial Assessment form that was adapted to include TTM stage of change assessment. The form records information such as demographic data, pertinent psychosocial data (including employment history), housing situation and education levels. Additionally, the form collects data regarding medical information, including past medical history, level of independence with ADLs and other co-morbid medical or functional conditions. ADL data were collected at initial assessment by noting what ADLs, if any, patients needed help with. If help was needed with one or more ADLs, patients were considered ADL-dependent. Examples of ADLs included in the assessments are dressing, getting out bed, meal preparation, transportation, bathing, shopping and errands.

The criteria for assessing stage of change at the RMC was based on social worker assessment of the patients’ responses to discussions about their treatment options. These discussions then formed the basis for their designation on the stage of change continuum. Criteria for

stage assessment are based on what patients say about being ready for RRT. Examples are included on Table 1.

Table 1

Examples of Criteria for Stage of Change Designation

PRE-CONTEMPLATIVE Patients are not contemplating treatment	CONTEMPLATIVE Patients are contemplating treatment	PREPARATION Patients are taking steps to prepare for treatment	ACTION Patients have taken action toward treatment
“I don’t want dialysis.”	“Not sure if I want any treatment.”	“I will most likely choose X when the time comes.”	“I am not pursuing any treatment.”
“No need for dialysis yet.”	“I’m looking into options, but have not made up my mind.”	“I have an appointment for AV access or PD catheter.”	“I have a PD catheter.”
“I feel fine.”	“I want a second opinion.”	“I have an upcoming test for a transplant.”	“I will start hemo next month once my access heals.”
“Will wait until it gets closer.”	“I am considering PD, HD, transplant, etc.”		“I have AV access.”
			“The transplant work-up in progress.”

Data Analysis

Data analysis was conducted by utilizing non-parametric statistical tests, in particular cross-tabulation and the chi square test of association. The association between demographic variables, stage of change designation and psychosocial risk and priority status were all tested. Moreover, frequencies were tabulated for all of the pertinent variables collected on the RMC social work assessment. The single parametric test consisted of a one-way analysis of variance (ANOVA), followed by a bonferroni post-hoc, which looked at age of patients and stage of change. All of the above-mentioned statistical analyses were performed using the statistical software package (SPSS).

Results

ADLs

When the pre-contemplative and contemplative categories were collapsed with this sample of renal patients, it was found that patients who were not independent with ADLs were associated with being pre-contemplative/contemplative about RRT. The association was significant ($p = 0.03$).

Demographics

The analysis included a sample size of 102 renal management patients; the mean patient age was 64.74 years (ranging from 27 to 90 years). Of the patients, 60.8% were men, 39.2% were female, proving a good distribution with gender. Of the sample, 42% were born outside Canada, 24.5% were born in Canada and 34% were of unknown origin. However, 81.4% of the sample was English-speaking.

Stage of Change by Demographics

One-way ANOVA was used to examine stage of change by age of patients. Significant differences were obtained ($p = 0.012$) and this was followed by a Bonferroni post-hoc test that indicated that there was a significant difference in age between those in the pre-contemplative stage and those in the action stage. Analyses revealed that the mean age of those in the pre-contemplation stage was 70.1 years while those patients in the action stage had a mean age of 51.89 years. Interestingly, the mean age of patients was highest in the pre-contemplative stage, with the mean age dropping for each stage of change after pre-contemplation (contemplation, 63.4; preparation, 62.1; action, 51.89). No association was found between stage of change and gender, language and place of birth.

Stage of Change

Regarding the stages of change, 33.3% of the sample were in the pre-contemplative stage, 45.1% were in the contemplative stage, 10.8% were in the preparation stage and 8.8% were in the action stage. These frequencies show that a far greater percentage (78.4%) of those assessed at the RMC are in the pre-contemplative/contemplative stages with regard to considering RRT, producing implications for social work interventions.

IMPLICATIONS FOR PRACTICE

This analysis is the first to examine the stages of change model with a population of pre-RRT ESRD patients. Not being independent with ADLs was associated with being in the pre-contemplative and contemplative stages of change. This suggests that those patients may already have significant psychosocial and functional challenges, to which a diagnosis of ESRD and consequent RRT discussions may be overwhelming.

In the context of assessing those ESRD patients who require assistance with ADLs, it may be clinically advantageous to be cognizant of the multiple stressors and challenges this population faces and the subsequent trend for them to be pre-contemplative or contemplative regarding RRT. This is particularly worrisome given that options for RRT for this group may be limited due to the nature of their abilities. Receiving home dialysis may not be an option for this group if assistance is not readily available. This limits the treatment options that may allow the patient to be more empowered over their treatment, namely "... home patients have the opportunity to be much more actively involved in treatment delivery and direction" (Christensen & Ehlers, 2002, p. 712).

Thus, to remain more autonomous, those who require ADL assistance and extra supports may at most end up ineligible for the more empowering home-based RRTs unless the right level of ADL supports are initiated. Thus, to provide a fair choice of RRT options to all patients, assistance with ADL support will be crucial for those who require home-based RRT. Otherwise, only those who are already autonomous will receive empowering home-based RRTs.

In this sample of renal management patients, a significant difference in age was found between patients who were pre-contemplative and those who were in the action stage. Not surprisingly, those in the pre-contemplative stage were significantly older than those in the action stage. This may be attributed to the value of health throughout the life span. Busschbach et al. (1993) found that the young and elderly respondents in their research examining the utility of health at various stages in life of ESRD patients believed health in the early periods of life to be twice as important as in the last decade of life (p. 153).

The TTM posits that there is a time-orientated progressive process that is involved with change, which therefore suggests that people will progress through the changes. However, this study revealed that those in the pre-contemplative stages had a mean age of 70.71 years. Perhaps, age precludes one from aspiring to make the necessary cognitive adjustments required to commit oneself to a life-long course of dialysis treatments.

Hansberry et al. (2005) found that many elderly individuals have an improvement in their quality of life and social support once their kidney disease is identified and treated. Therefore, social workers that work with elderly ESRD patients who are pre-contemplative or contemplative about accessing RRT must be aware that these patients may benefit from stage-based interven-

tions specifically targeted to address their ambivalence and contemplation.

Christensen et al. (1991) found that belief that one's health was controllable was associated with less depression in ESRD patients "[underscoring] the adaptive value of congruence between control beliefs and objective circumstances in chronic illness" (p. 419). It is possible that education and support, which empowers patients to regain some control over their illness, may be beneficial. It would be interesting to examine the relationships between health locus of control and stage of change to determine if such relationships existed. It may well be worth exploring whether those who have a greater internal locus of control are also more inclined to be in the preparation or action stages of renal replacement consideration.

According to Prochaska and Velicer (1997), basic research has generated a "rule of thumb" for at-risk populations in that 40% are pre-contemplation, 40% are contemplation and 20% are preparation (p. 38). These numbers were somewhat replicated by this population of renal management patients, suggesting that the TTM may have been appropriately applied to this population.

Limitations

Several limitations of this study should be addressed, beginning with the study design, which used a retrospective cross-sectional analysis of data from social work assessments as opposed to a more scientifically rigorous experimental design. The stage of change designations are based on clinical judgment and not a standardized validated measurement tool. Therefore, findings from this analysis must take that into consideration. Moreover, data was collected from one geographic area, specifically a large urban teaching hospital and more research would be necessary to see if the associations noted in this research were replicated in rural or suburban settings. Despite the limitations, several interesting findings were noted that could enhance social work assessments with ESRD populations.

Future Directions

Utilizing the stages of change as an assessment tool in brief clinical encounters can provide a valuable addition to the social worker's clinical judgment and allow for the social worker to more effectively convey the patient's psychosocial and emotional process of change within multi-disciplinary medical teams. Furthermore, understanding the stages of change allows practitioners to tailor interventions based on individual patient's emotional readiness to consider RRT. Possible future

research might include a longitudinal analysis that would ascertain whether renal management patients, in particular the older renal management patients (>70 years), indeed move through the stages, or whether it is more effective as an initial assessment tool for these populations. Finally, future research should focus on the development of a standardized assessment tool and corresponding stage-based interventions based on the TTM and stage of change concepts.

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