Applying the Transtheoretical Model of Change to Consumer Debt Behavior

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The Transtheoretical Model of Change (TTM) provided the framework for developing a measure to assess readiness to get out of credit card debt with consumers who are having credit card debt troubles. Key constructs of TTM include stages of change, decisional balance, self-efficacy, and processes of change. The items for the measure were developed by qualitative interviews with experts in credit counseling and consumers with debt troubles. A survey was then completed with a sample of debt-troubled consumers. Multiple quantitative analyses were conducted to determine the reliability and validity of the measure. The results have potential for use by counseling practitioners, educators, and researchers.

Keywords: *Behavior modification, Consumer behavior, Credit card debt, Financial management*

Introduction

Consumer debt behavior has been researched in the literature of economics and psychology in the last decade. Most previous studies focused on the identification of factors associated with consumer debt behaviors (Chien & DeVaney, 2001; Davies & Lea, 1995; Drentea & Lavrakas, 2000; Godwin, 1998; Hayhoe, Leach, & Turner, 1999; Hayhoe, Leach, Turner, Bruin, & Lawrence, 2000; Kim, & DeVaney, 2001; Lea, Webley, & Walker, 1995; Livingstone & Lunt, 1992; Tokunaga, 1993; Walker, 1996; Zhu & Meeks, 1994). Little research has focused on the process of debt reduction or the effectiveness of intervention to modify behaviors to eliminate undesirable credit card debts. This study attempts to address this deficiency in research by developing a measure that is useful for professionals who intend to help consumers change their behaviors to reduce and eliminate their credit card debt.

This paper reports a measure developed with data collected from American consumers who have credit card debt troubles. The findings are informative for practitioners and educators in consumer credit counseling to better help their clients and for researchers to improve future research designs to gauge experiential and behavioral processes of change consumers experience when they are reducing their credit card debts.

The Transtheoretical Model of Change

The framework used in this study is the Transtheoretical Model of Change (TTM), which is commonly used in the health arena to help people stop unhealthy behaviors and/or develop healthy behaviors. The Transtheoretical Model of Change was developed in the 1970s (Prochaska, 1979). The Model was first applied to the cessation of smoking and then to a variety of other health-related behaviors, including alcohol abuse, drug abuse, high fat diet and weight control, psychological distress, and sun exposure (Prochaska, Redding, Harlow, Rossi, & Velicer, 1994). A few studies applied TTM to other areas, such as organizational change (Prochaska, 2000), collaborative service delivery (Levesque, Prochaska, & Prochaska, 1999), and domestic violence (Levesque, Gelles, & Velicer, 2000).

The key constructs of TTM include stages of change, processes of change, decisional balance, and self-efficacy. The five stages of change are:

Precontemplation--not intending to take action within the next 6 months

Contemplation --intending to take action within the next 6 months

Preparation --intending to take action within the next 30 days

Action --made overt changes less than six months ago

Maintenance --made overt changes more than six months ago

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The ten processes of change and their abbreviated designations are:

consciousness raising	*CR*
social liberation	*SO*
dramatic relief	*DR*
environmental reevaluation	*ER*
self-reevaluation	*SR*
self-liberation	*SL*
counter conditioning	*CC*
stimulus control	*SC*
reinforcement management	*RM*
helping relationships	*HR*.

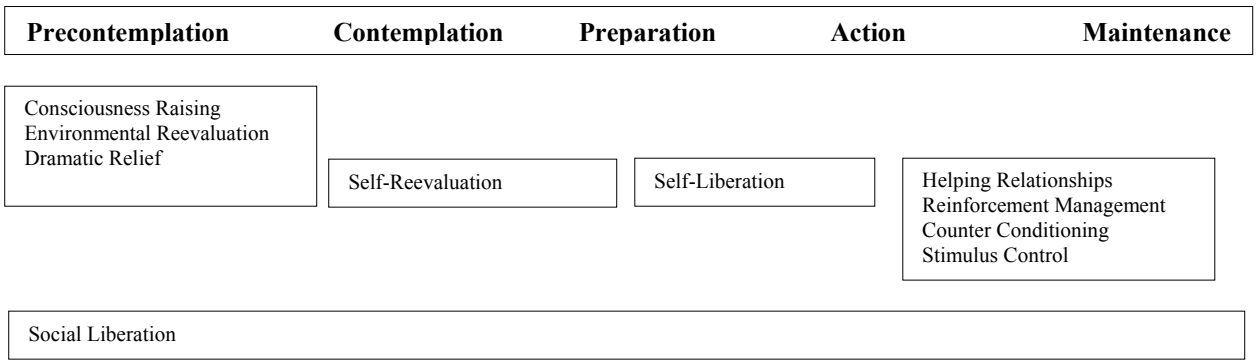
Table 1 presents definitions of the processes of change. In the early stages, people apply experiential processes, such as consciousness raising, environmental reevaluation, and dramatic relief, which are cognitive, affective, and evaluative to support their progress through the stages. In the later stages, people rely more on the behavioral processes of counter conditioning, reinforcement management, stimulus control, and helping relationships for progressing toward termination (Pro-Change Behavior Systems, 2002). Figure 1 describes the general relationship between stages of change and processes of change. The key to fostering successful change is to know what stage a person is in and then to use appropriate strategies or processes to move forward (Prochaska, Redding, & Evers, 1996). Decisional balance reflects an individual's relative weighing of the pros and cons of changing (Prochaska et al, 1996). Self-efficacy is the situation-specific confidence people have that they can cope with high-risk situations without relapsing back to their unhealthy or high-risk habits (Prochaska et al., 1996).

Table 1.
Definitions of Processes of Change

Change Process	Defined by TTM
Experiential	
Consciousness raising	Finding and learning new facts, ideas, and tips that support the healthy behavior change
Dramatic relief	Experiencing the negative emotions that go along with unhealthy behavior risks
Social liberation	Realizing that social norms are changing in the direction of supporting the healthy behavior change
Environmental reevaluation	Realizing the negative impact of the unhealthy behavior or the positive impact of the healthy behavior on one's proximal social and physical environment
Self-reevaluation	Realizing that the behavior change is an important part of one's identity
Behavioral	
Self-liberation	Making a firm commitment to change
Counter conditioning	Substituting healthy alternative behaviors and cognitions for the unhealthy behaviors
Stimulus control	Removing reminders or cues to engage in the unhealthy behavior and adding cues or reminders to engage in the healthy behavior
Reinforcement management	Increasing the rewards for the positive behavior change and decreasing the rewards of the unhealthy behavior
Helping relationships	Seeking and using social support for the healthy behavior change

Source: Prochaska, Redding, and Evers (1996).

Figure 1
Stages by Processes of Change



TTM has been applied to financial behavior only in the last few years. Kerkman (1998) discussed how to use TTM in financial counseling and presented a case to demonstrate her approach. Bristow (1997) suggested that this model could be used to change people's financial behavior in Money2000, a USDA extension program on financial education. Money2000 is a successful financial education program, which was adopted by 29 states and reported a total dollar impact of $20 million (O'Neill, 2001). Based on the data collected among the program participants in New Jersey and New York in 1998, preliminary evidence indicated that certain processes of change were used more frequently by the participants who reported behavioral changes (Xiao, O'Neill, Prochaska, Kerbel, Brennan, & Bristow, 2004).

Another study applied the framework of TTM to a sample of low income consumers who participated in the Independent Development Account (IDA) financial education program (Shockey & Seiling, 2004). Compared to previous studies, this analysis has unique features. This study applies TTM to consumers who have credit card debt problems and the data were collected from those consumers. The purpose of this study is to help consumers change their behaviors to eliminate credit card debts. In addition, two key constructs of TTM, decisional balance and self-efficacy, not included in previous studies, are included and measured in this study. The goal of this study is to develop a rigorous constructed measure of the intention to eliminate credit card debt, which is useful for counselors, educators, and researchers in consumer credit counseling.

Methods

Both qualitative and quantitative approaches were used for the measurement development. Expert and consumer interviews were completed in 2002. Five experts who are familiar with consumer debt problems were identified. Among them were a president of a regional consumer credit counseling services (CCCS), a dean of a business school who once worked in a bankruptcy court, a director of a college financial aid office, a director of a consumer financial education center, and an extension agent who works with low income consumers. The first four experts were interviewed face to face. The last expert sent answers for interview questions in writing.

The research team intended to recruit consumers with troubling credit card debt to participate in focus groups. The regional president of CCCS, who served as one of the experts for this study, suggested that telephone interviews might be better. Consumers with debt problems may not want to show up in-person because of the social stigma and sensitivity of the topic. Another major barrier was that potential participants live in various geographical areas that would necessitate long distance travel to the focus group meeting locations. Through a notice in the newsletter of the regional CCCS, we recruited 15 clients who agreed to participate in a telephone interview. Each of the interviews lasted one to one and half hours. Each of the consumers interviewed was paid $25 for participation. Based on those interviews, items were identified that are relevant to several key constructs specified by TTM: definition of the targeted behavior, decisional balance (pros and cons), self-efficacy or confidence, and processes of change.

Based on the expert interviews and consumer telephone interviews, items were generated for the constructs of TTM. Ten items were generated for confidence (self-efficacy). For decisional balance, nine items were generated for pros and nine for cons. For each of the ten processes of change variables, five to six items were generated. The items were used in a mail survey. The survey was cognitively tested by ten consumers selected by our team members. The results of cognitive testing were used to revise the wording and to improve the clarity of questions in the survey.

In the survey, we asked questions about the stage of change, demographics, and debt-related behaviors as well as questions regarding the major TTM constructs. With assistance from a national debt counseling company, we recruited consumers who were having debt problems to participate in the mail survey in 2003. The staff of that company used their newsletter, direct call, and direct mail to inform potential participants that they were invited to participate in this study. If they agreed to participate and provided their mailing addresses to our research staff, we then mailed them the survey. If they returned the completed survey, they were paid $20 for their participation.

In addition, we recruited students with debt troubles from several online courses at a university in the northeast US. We issued 438 questionnaires; 263 were returned and completed for a response rate of 60%. According to the staff of the agency who issued the request, consumers who were in earlier stages were less likely to respond to our survey. Our later analyses also showed that the number of cases in the first three stages of change were smaller than those of the later two stages. In addition, some consumers did not return the questionnaire because they were not willing to reveal their social security numbers to receive incentive checks, which was required by our university's policy. We will discuss this limitation and implications for future research at the end of this paper.

Based on the literature (Greninger, Hampton, Kitt, & Achacoso, 1996; Lytton, Garman, & Porter, 1991; O'Neill, 1995) and interviews, we defined consumers who are in debt trouble as those whose monthly minimum payment for credit card debts is 20% or more of their take home income. Based on the expert interviews and consumer telephone interviews, we defined that *Getting rid of credit card debts means:* paying more than the minimum required each month, stopping unnecessary purchasing, and stopping credit card use. We assume that a consumer has changed behavior if someone with credit card debt problems is practicing those three behaviors. In the questionnaire we asked, "Keeping in mind the definition of getting rid of credit card debt, are you doing the necessary behaviors, that is paying more than the minimum required each month, stopping unnecessary purchasing, and stopping credit card use to get rid of credit card debt?" The consumers were classified in five stages of change according to their responses:

Precontemplation --No, and I do not intend to in the next six months
Contemplation --No, but I intend to in the next six months
Preparation --No, but I intend to in the 30 days
Action --Yes, I have but for less than six months
Maintenance --Yes, I have for more than six months

Findings

Descriptive Statistics of the Sample

Tables 2 and 3 present descriptive statistics of the sample. Typical participants in the sample are female, white, with a two-year college education, married, with a household size of two persons. The average age is about 40 and average monthly take-home income is $2723.38. Respondents tend to have more than six credit cards, worry about credit card debt quite often, and participate in debt counseling. The average credit card debt is $18,985 and minimum monthly debt payment is $574.67. In terms of stages of change, about 40% were in the Action stage and about 30% in the Maintenance stage.

Decisional Balance and Confidence

Procedure A Principal Component Analysis (PCA) was conducted for the Decisional Balance and Confidence measures using Component Analysis Extended Program (CAX) (Velicer, Fava, Zwick, & Harrop, 1988). This analysis was conducted on the matrix of inter-item correlations, utilizing orthogonal (VARIMAX) rotation. Decisions regarding how many factors to retain were based on the factor loadings, the theoretical interpretability of the factors, the Scree Plot (Cattell, 1966), the Minimum Average Partial (MAP) procedure (Velicer, 1976; Zwick & Velicer, 1982) and Parallel Analysis (PA) (Horn, 1968). The MAP procedure and PA were performed by CAX. According to Zwick and Velicer (1986), the latter two decision rules for deciding on the number of factors to retain are the most accurate across a variety of situations. In general, items loading less than .40 or loading .40 on more than one factor were discarded before running a second PCA using the same procedures on the remaining items.

Further elimination of items was determined based on inter-item correlations, item means and standard deviations, complexity of items, Cronbach's coefficient alpha with and without individual items, and component interpretability. Component interpretability involves keeping the strongest items while maintaining the breadth of the construct. Content reasons to remove items included content overlap between items, lack of representativeness of the overall construct, or difficult language.

Results Eighteen Decisional Balance items were included in the questionnaire. One item was removed prior to PCA due to non-normality. Parallel analysis indicated two factors. Two items were removed due to low factor loadings and loading complexity. The final pros scale included four items with factor loadings ranging from .60 to .79. The cons scale consisted of four items with loadings that ranged from .58 to .79. These two factors accounted for 48.4% of the variance. The coefficient alphas for the pros and cons scales were .62 and .63, respectively. The final items are listed in Table 4.

Ten confidence items were initially included in the questionnaire. While Parallel Analysis indicated two factors, MAP indicated only one factor. The two-factor solution did not appear to have content validity so that a one factor solution was accepted. Four items were removed due to low factor loadings and content similarity. The final Confidence scale included six items with factor loadings ranging from .61 to .74. This single factor accounted for 47.5% of the variance. The coefficient alpha for the scale was .77. The final items are listed in Table 5.

Table 2
Descriptive Statistics for Categorical Variables (N=263)

Variable	Percentage
Gender	
Male	22.1
Female	77.9
Race/Ethnicity	
American Indian	.8
Asian	2.7
Black	12.9
White	73.4
Hispanic	5.7
Other	4.6
Education	
<8th	1.1
<H.S.	2.3
HS	18.3
Col. 2yr	47.5
Col. 4yr	18.6
Col. 4+	12.2
Marital status	
Married	41.6
Never Married	22.5
Partner	8.4
Divorced	17.6
Separated	4.2
Widowed	5.7
Household size	
1	24.3
2	32.7
3	17.5
4	14.4
5>	11.0
Number of credit cards	
1-3	25.1
4-5	31.2
6>	43.3
How often do you worry about your credit card debt?	
Not at all	2.3
A little	10.6
Quite a bit	39.9
All the time	47.1
Participate in debt counseling	
Yes	61.2
Some	17.5
No	21.3
How you were contacted for this survey	
Newsletter	55.1
Phone	26.6
Letter	14.8
E-mail	3.4
Change stage	
Precontemplation	5.3
Contemplation	16.7
Preparation	8.0
Action	40.7
Maintenance	29.3

Table 3
Descriptive Statistics for Continuous Variables (N=263)

Variable	
Age	
Mean (SD)	39.64 (13.86)
Median	37
Mode	24
Total credit card debt	
Mean (SD)	18985 (16958.49)
Median	15000
Mode	20000
Min. monthly debt payment	
Mean (SD)	574.67 (554.15)
Median	500
Mode	500
Monthly take home income	
Mean (SD)	2723.38 (3984.14)
Median	2000
Mode	3000

Table 4.
Decisional Balance Final Items

Factor Loading	Item
PROS	
.793	Getting rid of credit card debt would increase your self-esteem.
.699	You would increase your family's security.
.640	You would have less stress.
.597	You would set a good example for others.
CONS	
.577	Getting rid of credit card debt may not allow you to keep up with "the neighbors" on status purchases.
.645	Getting rid of credit card debt may create more tension in your home.
.790	Getting rid of credit card debt may make family members unhappy.
.717	Getting rid of credit card debt could limit family activities.

Table 5.
Confidence Final Items

Factor Loading	Item
.610	Your car breaks down.
.648	You become ill.
.745	It's the holidays.
.730	You are feeling stressed.
.707	Your financial situation changes.
.684	It is taking longer than expected to get rid of your credit card debt.

Processes of Change

Procedure Due to the underlying complexity of the processes of change, the exploratory phase of development involved using Structural Equation Modeling to explore the structure of the items and constructs. Maximum Likelihood (ML) was used as the estimator of model fit due to the robustness of this estimator with slightly non-normal data (Harlow, 1985). The analysis was conducted on the matrix of inter-item covariances. Due to the nature of the analyses, items were forced to load on a priori proposed constructs. Several iterations of models were tested in order to attain better fitting models. Items were either removed or reorganized based on high residuals, the Lagrange Multiplier test, the Wald test, factor correlations, Cronbach's coefficient alpha with and without individual items, and item content and component interpretability. Again component interpretability involved keeping the strongest items while maintaining the breadth of the construct as with the Decisional Balance and Confidence scales. This series of steps was completed several times before an appropriate fitting model of the Processes was agreed upon.

According to Bollen and Long (1993), there is a strong controversy regarding which fit index is the most appropriate. As a result, Chi Square tests should not be relied on in isolation. Several indices of fit, including both overall and specific indices, should be examined in each case. Therefore four different fit indices were examined for each of the alternative models. These included (1) the likelihood ratio chi-square test statistic, which is ideally low; (2) the comparative fit index (CFI), which is ideally closer to 1.0 because values closer to one represent a better fit; (3) the average absolute standardized residual statistic (AASR), with values closer to zero indicating a better fit; and (4) the root mean square error of approximation (RMSEA). Traditionally values of CFI above .80 indicate good fit while values above .90 indicate excellent fit. For the AASR and RMSEA, values below .06 indicate excellent fit. All four fit indices were compared across models.

Results Fifty-six processes of change items were included in the questionnaire, with either five or six items on each of ten processes. After an initial model was run with all 56 items, items on each process were removed due to low loading, complexity with other constructs, or content invalidity. Additionally, the processes of stimulus control and self reevaluation were not found to be strong components and were removed completely from the model. The final 24-item, eight factor, correlated solution showed indices that ranged from adequate to a well fitting model, good fit with $\chi^2(224)=584.26$, CFI = .839, AASR = .053, and RMSEA = .080. Due to the small sample size and complexity of the model, it is not surprising that all indices do not show excellent fit. The final model and items are presented in Figure 2. For ease of presentation, Table 6 lists the correlations between the factors.

Table 6.
Correlations between Processes of Change in Final Model

	CR	DR	ER	SO	CM	HR	CC
DR	.641						
ER	.427	.593					
SO	.511	.143	.179				
CM	.320	.113	.541	.300			
HR	.331	.127	.303	.492	.687		
CC	.334	.221	.513	.205	.883	.384	
SL	.349	.064	.395	.287	.938	.325	.778

External Validity

Procedure Once the final measures and subscales were obtained, the relationships among the constructs of the TTM were examined to provide an index of external validity. Specifically, the relationship of stage to the other constructs (i.e., pros and cons, confidence, and processes of change) was examined. Several cross sectional analyses of the data (i.e., MANOVA, follow-up ANOVA, and post-hoc tests) were conducted to determine if the patterns predicted by the TTM emerge in this sample.

Results There were no significant stage differences for the Decisional Balance measures (Wilks' Lambda = .98, approximate F (8, 514)=0.49, $p>.05$). Figure 3 shows the pattern of pros and cons across the stages.

An ANOVA on confidence by stage revealed a significant stage difference (F (4, 258)=3.87, $p<.01$). The difference constitutes a medium effect, $eta^2 = .06$ (Cohen, 1988). Consumers in Contemplation reported significantly less confidence than those in Maintenance. Figure 4 shows the confidence construct across the stages of change.

There was not a significant overall MANOVA (Wilks' Lambda = .84, approximate F (32, 923)=1.40, $p\geq.05$). Follow-up ANOVAs were found to be significant only for counter conditioning. Individuals in pre-action reported significantly less use of counter conditioning than those in Action. Figures 5 and 6 show the pattern of the processes of change across the stages of change.

Figure 2.
Process of Change Final Model

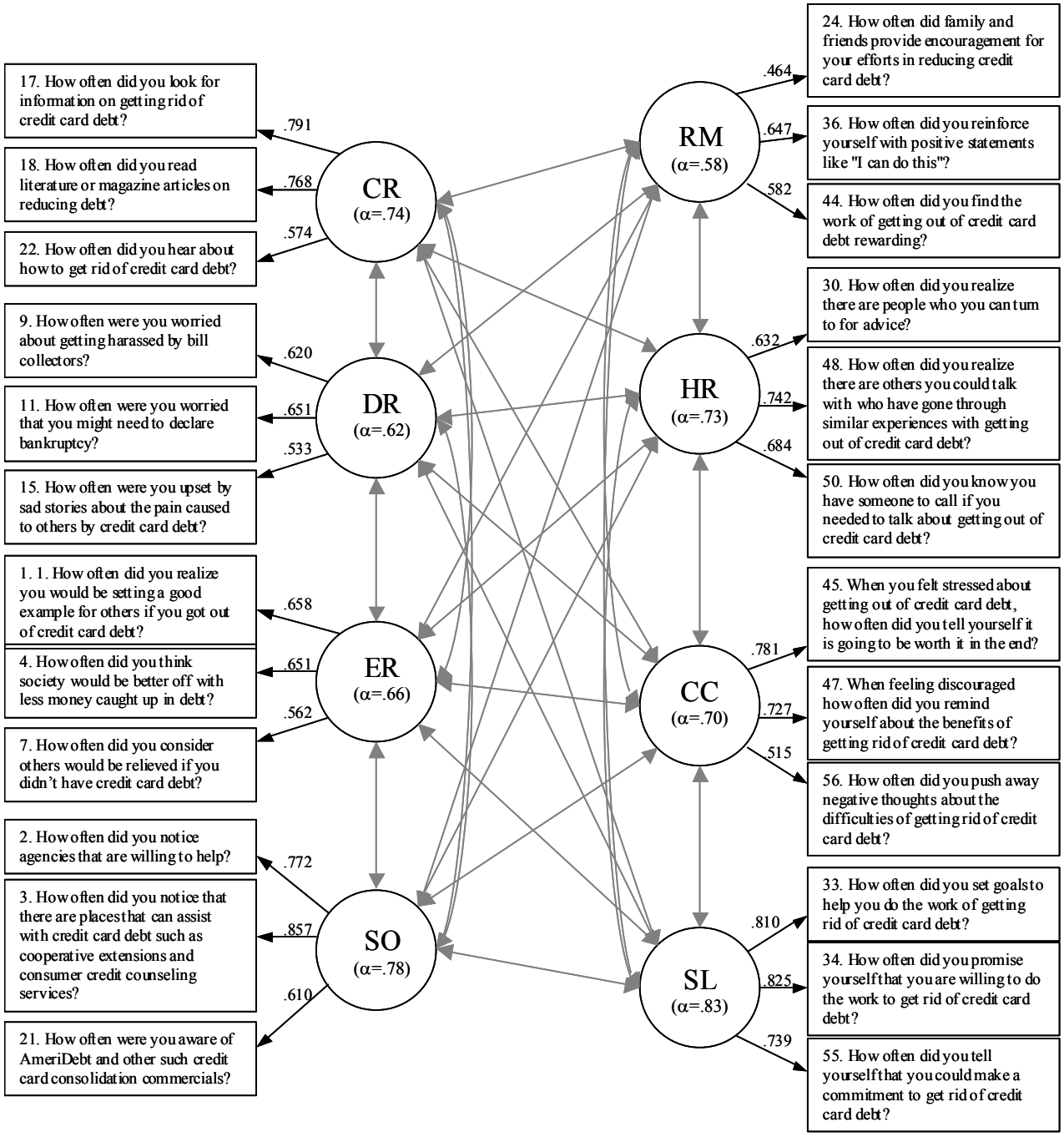


Figure 3.
Decisional Balance by Stages of Change

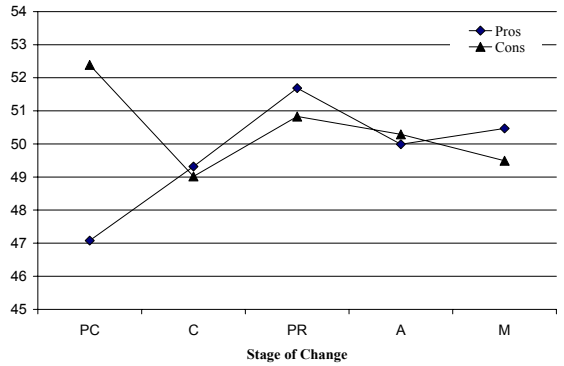


Figure 4.
Confidence by Stages of Change

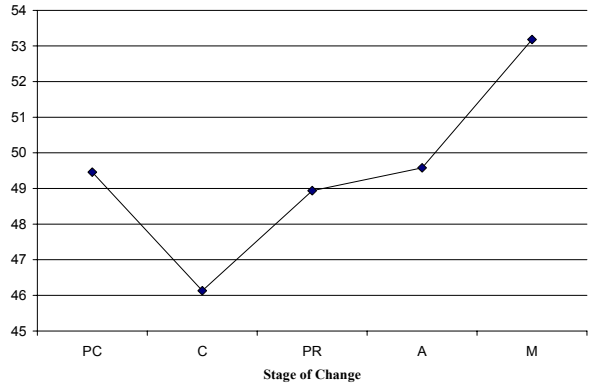


Figure 5.
Experiential Processes of Change by Stage of Change

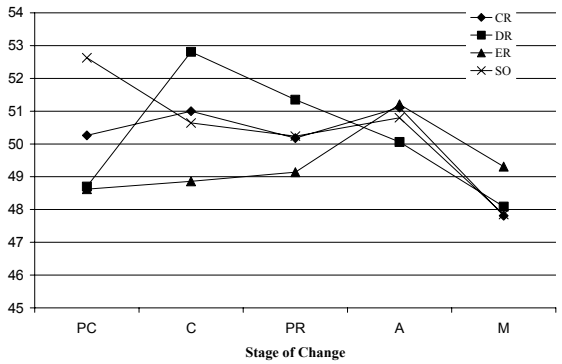
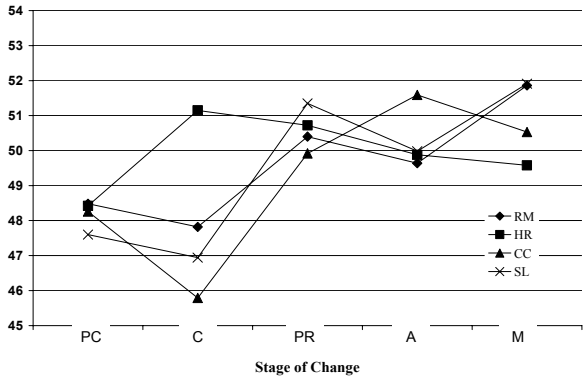


Figure 6.
Behavioral Processes of Change by Stage of Change



Discussion

The TTM measures-- decisional balance, confidence, and processes of change--showed good psychometric properties with strong reliability and content validity. The pattern of relationships between the stages of change and the other TTM variables developed here were similar to those found for other behavior areas. Confidence and behavioral processes, specifically counter conditioning, increased across the stages while experiential processes increased in the early stages and then decreased after reaching Action.

Although the majority of these relationships were not statistically significant, there are a variety of reasons for this. The primary explanation is the small number of people in the early stages. Unequal and small cell sizes reduce the power to find significant effects. The one construct that showed the most divergent pattern with the stages of change from most previous research was decisional balance. We typically expect the pros to increase across the stages, the cons to decrease and a

cross-over to occur in either the Contemplation or Preparation stage. For this behavior there were no significant differences. However, there is a pattern of increasing pros and a decreasing of cons between Precontemplation and Maintenance with more ambivalence for the middle stages. That pattern was previously found for other behaviors that were more under social rather than self control, such as cocaine use. For behaviors that are more under social control, there is a higher risk of relapse, as was found in smoking cessation studies of the Air Force, perhaps due to moving into Action before the individual was really prepared to do so. In the case of consumer debt, participants appear to struggle with the cons even while they are making continuing progress in debt reduction. Interventions in this area may need to address this issue and work on increasing the pros and decreasing the cons of getting out of debt throughout the stages.

The relationships between stages of change and confidence and the processes of change support the hypothesis that people may report being in Action before they are truly ready. For both confidence and the processes of change, people in Action are more similar to people in Preparation than to those in Maintenance. They are still actively using the majority of the experiential processes along with the behavioral processes. This indicates that the people in Action are still working hard to convince themselves about the desirability of change and may be at high risk for relapse. For the most part individuals are relying on counter conditioning rather than some of the other processes. Individuals in pre-action stages should be given help in using more of the experiential processes while those in Action should be encouraged increasingly to use behavioral processes, including but not limited to counter conditioning.

Conclusion and Implications

This is the first study to develop a measure to assess readiness to eliminate credit card debt for consumers in credit card debt troubles using the Transtheoretical Model of Change (TTM). TTM includes key constructs such as stages of change, decisional balance, self-efficacy (confidence), and processes of change. Both qualitative and quantitative approaches have been used to collect information from experts in credit counseling and from consumers with credit card debt troubles for the item development. The measure includes eight items for decisional balance, six for self-efficacy, and 24 items for processes of change. External validity tests have been conducted that provide evidence of the validity of applying TTM to consumer debt behavior.

Implications for Consumer Credit Counselors

The findings of this study can be used by consumer credit counselors. The key constructs of TTM could help professionals recognize that behavioral changes involve multiple stages. The instrument generated by this study could be used for measuring consumer readiness for behavior change and may help professionals understand their clients' intention to change. These professionals could then develop various strategies based on a specific stage of change to help consumers in debt to move forward to get rid of credit card debt. The following are specific suggestions.

Define targeted and desirable consumer debt behavior. In the industry of consumer credit counseling, the target and desirable consumer behavior is to eliminate credit card debt during a certain period of time. According to the definition of this study, a consumer is in Action to eliminate credit card debt if he/she makes more than the monthly minimum payment, stops unnecessary purchases, and stops using credit cards. The first and third behaviors are obvious and easy to observe. The second behavior is more self-perceived and could be different for different consumers. Consumer counselors could work with their clients to define what are unnecessary purchases by recording and analyzing their current spending patterns. After unnecessary purchases are defined based on individual consumers' circumstances, counselors would clearly observe the change of this behavior.

Identify stages of change. Counselors need to understand that behavior change is a process that occurs in a series of stages. This study categorized respondents into the five stages of change, Precontemplation, Contemplation, Preparation, Action, and Maintenance. Counselors could use this method to classify their clients into various stages of change and then prepare strategies appropriate to the client's situation.

Facilitate behavioral changes with various strategies. The goal of the Transtheoretical Model of Change is to match the stage of change with various intervention strategies. Data collected for this study confirm the validity of the matching strategies embedded in TTM. For example, with consumers in the first three stages--Precontemplation, Contemplation, and Preparation--strategies focusing on consciousness raising, dramatic relief, environmental reevaluation, and social liberation should be used more often to move them to the last two stages, Action and Maintenance. When consumers are in the last two stages, strategies focusing on reinforcement management, helping relationships, counter conditioning, and self liberation should be used more often to help consumers maintain their behavior change in the positive direction.

Use pros and cons to facilitate the behavior change. This study identified four pros and four cons for eliminating credit card debt. Counselors could use the

information to help their clients to change their behavior by emphasizing the pros. The four pros represent different aspects, such as self-esteem, family security, stress, and being an example for others. Counselors could talk with their clients to find out what aspects are more valuable to their clients based on their individual cases. Counselors could then emphasize the pros in that aspect to help their clients move to a positive behavior change. In the same manner, counselors could also identify what aspects of the cons are a concern for their clients and develop positive strategies for those clients to help them reduce their cons. For example, the four cons represent keeping up with neighbors, family tension, unhappy family members, and family activities. If a client who is more concerned that getting rid of credit card debt would limit family activities, the counselor could help this consumer find alternative and less expensive ways to keep family activities at the same level while reducing credit card debt. In the mean time, the pros and cons can be used to measure the progress of clients in the behavior change process.

Use the confidence measurement to facilitate behavior change. This study identified six situations that test the confidence of a client who is in the process of behavior change to eliminate credit card debt. Those items could be used by counselors to test their clients' confidence level and also to observe their clients' behaviors when those situations present. Those items could be used in counseling sessions to see what are clients' reactions when those questions are asked. Counselors could use those items to detect if their clients are making progress in the positive direction of the behavior change.

Use behavior measurement and data collection. To better understand their clients, counselors need to keep a record of their clients in a systematic way. For example, they may ask their clients questions about the pros and cons of eliminating credit card debt and questions regarding the confidence level when difficult situations occur Through the record, they may detect if their clients are making progress in the positive direction.

Get help from researchers. Researchers reporting this study have developed a manual based on the stages of change for consumer credit counselors to use the framework of TTM with their clients. The authors are interested in working with consumer credit counselors to create more effective approaches.

Implications for Educators

Findings of this study could also be used by educators who are interested in helping people improve their financial well-being through financial educational programs. Two previous studies reported applying TTM and integrating behavior change goals in financial educational programs (Shockey & Seiling, 2004; Xiao, O'Neill, Prochaska, Kerbel, Brennan, & Bristow, 2004). Findings from this study provided additional insights to make financial education programs more effective to not only increase consumers' financial knowledge but also help them change their behaviors in a positive direction. Based on the findings of this study, educators who are interested in financial education programs that reflect knowledge of behavior change should consider the following.

Design a behavior change oriented educational program. The goal is to increase financial knowledge that results in behavior change in a positive direction. If the purpose of the program is to eliminate consumer credit card debt, the three indicator behaviors discussed above could be used to measure the behavior change. Educators should be aware that a educational program oriented to behavior change is a mechanism of social liberation. When this kind of program is offered, educators need to make sure that students understand the implications of behavior change.

Develop educational components that match stages of change. Based on the findings of this study, consumers in various stages of change would use various strategies or processes of change. Educators in behavior change oriented programs could develop educational components matched to stages of change to better educate consumers who are in debt. For consumers in the first three stages of change, educational focus should be on consciousness raising, dramatic relief, environmental reevaluation, and social liberation. To educate consumers in the later stages, the teaching approaches should emphasize reinforcement management, helping relationship, counter conditioning, and self liberation. Items developed in this study could be used as examples when educational approaches are developed. To achieve better educational results, educators may want to develop at least two different programs to target those two groups, one with consumers in the first three stages and the other with consumers in the last two stages of change.

Discuss pros and cons of the targeted behavior change. Educators could use the pros and cons developed in this study as starting examples to discuss the benefits and costs of eliminating credit card debt. To encourage consumers' participation, educators could also invite consumers to contribute more pros and cons. Educators need to keep a record of these discussions and identify consumers who emphasize different aspects of pros or cons. The goal of educators is to help consumers identity pros they never thought of before and reduce cons perceived by consumers.

Use confidence items in case discussions. This study developed items that represent difficult situations when consumers plan to eliminate their credit card debt. Those items could be used by educators as starting examples for discussion. Educators could also invite consumers to suggest different difficult situations they face and ask for their reactions. Educators also need to beware that some consumers may be more vulnerable to certain difficult situations and provide practical advice to help consumers be able to deal with those situations.

Use data collection and program evaluation. To document the success of an educational program, data collection is essential. Educators need to work with researchers to design effective questionnaires to measure consumers' progress in both knowledge and behavior change for at least two time points. Ideally, the assessment should be done at the beginning and then again one or two months after the program is offered. Authors of this study are willing to work with financial educators in questionnaire design, data collection, and data analyses that help consumers increase their financial knowledge and change their undesirable behaviors.

Implications for Future Research

This research lays a foundation for future research. One promising direction is to explore reasons for the absence of two processes of change, stimulus control and self-reevaluation. Future research needs to repeat the procedures described in this study, create a second round of items for stimulus control and self-reevaluation, and find out whether or not the two missing processes exist in the context of consumer debt behavior and why. A challenge for future research is to collect information from consumers who have serious debt problems, but are not intending to work on reducing them soon, i.e. those in the Precontempation and Contemplation stages. A larger sample of consumers in the first two stages of change would help answer this question. Another direction for future research is to use the measure to help consumer credit counselors develop effective strategies that will accelerate debt reduction and enhance program retention. TTM has been used in many health-related behavior changes where computer expert systems were developed to help people change on their own. Future research could also apply such successful approaches to debt behavior.

Endnotes

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