Examining Readiness for Change: A Preliminary Evaluation of the University of Rhode Island Change Assessment With Incarcerated Adolescents

Paul J. Cohen, Brian A. Glaser, Georgia B. Calhoun, Catherine P. Bradshaw, and John V. Petrocelli

In order for behavioral change to occur through counseling or psychotherapy, the client needs to demonstrate some level of readiness for change. It is theorized that clients typically move through a series of sequential stages when reducing usage of undesirable behaviors (e.g., smoking, overeating) or increasing usage of adaptive strategies (e.g., addressing psychological problems, resolving conflict prosocially). Although accurate assessment of a client's readiness for change has significant therapeutic utility, only a few such measures have been developed. The present study examines how appropriate the widely influential University of Rhode Island Change Assessment (URICA; McConnaughy, Prochaska, & Velicer, 1983) is for measuring readiness for change in incarcerated adolescents receiving counseling services.

TRANSTHEORETICAL MODEL OF BEHAVIOR CHANGE

Although typically referred to as the "stages of change model," this is only one aspect of the larger transtheoretical model (Prochaska & DiClemente, 1984). As suggested by its name, the transtheoretical model incorporates several theories and aspects related to behavior change, including the processes of changing, potential benefits and drawbacks of changing, temptations, and self-efficacy (Velicer, Prochaska, Rossi, & DiClemente, 1996). The stages of change model is the central component of the transtheoretical model and continues to be popular with clinicians and researchers, primarily in the addictions field (Sutton, 2001).

Some of the earliest published research on the stages-of-change process comes from the addictions and behavioral health fields. Counselors and health practitioners documented the change process as it related to reductions in undesirable or unhealthy behaviors, such
as smoking and alcohol abuse. Specifically, Horn (1976) observed that the following four stages were associated with the process of change in health behavior modification: contemplating change, deciding to change, short-term change, and long-term change.

Extending earlier work on the stages of change, other researchers (e.g., McConnaughy et al., 1983; Prochaska & DiClemente, 1982) put forth a more detailed five-stage model of change, which included precontemplation, contemplation, preparation, action, and maintenance (described in detail as follows). Each stage represents a specific collection of attitudes, intentions, and behaviors that are typical of individuals at that stage (Prochaska & Norcross, 1999).

Although it is possible that an individual may proceed through the stages of change in a linear fashion, setbacks or relapses are common. When relapses do occur, the individual may regress to an earlier stage. According to Prochaska and DiClemente (1984), 85% of self-changers (i.e., those attempting change without assistance) recycle back into the contemplation or precontemplation stage. Despite relapses, individuals may learn from their mistakes and again move toward change (DiClemente et al., 1991).

Although most commonly used for making health-related behavior change, such as reductions in substance abuse, the stages-of-change theory and corresponding measures hold promise for use for with psychotherapy clients (Greenstein, Franklin, & McGuffin, 1999; McConnaughy, DiClemente, Prochaska, & Velicer, 1989). Administering a measure of readiness for change early in the therapeutic process may help the clinician gauge the client’s acknowledgment of the problem and commitment to the change process. Clinicians can also use the measure to inform treatment plans.

Because most of the research has been conducted on individuals making discrete behavior changes, it is less clear how sufficiently the model generalizes to individuals demonstrating a range of psychological problems. Further complicating the issue, psychotherapy is viewed as a multitude of changes within a process, and clients enter psychotherapy at varying points in the change process and for different reasons. More specifically, some individuals enter therapy because they are forced to by family, an employer, or the justice system (e.g., as a result of a driving under the influence of alcohol conviction or spouse/child abuse charges). Less is known about the utility of the stages of change model or using measures of change readiness when providing clinical services to individuals who are required to enter counseling.

MEASURES OF READINESS FOR CHANGE

Only a few published instruments have been developed to measure the therapeutic change process in accordance with the transtheoretical model. These procedures fall into two main groups: staging algorithms and multidimensional scaling approaches (Sutton, 2001). Using a staging algorithms approach, the individual indicates which of the four or five stage descriptions best characterizes his or her typical feelings, attitudes, and/or behaviors. These measures are commonly used to assess readiness for change regarding substance abuse, and the measures typically describe very particular behaviors and specify a timeline of substance use or behavior patterns. For example, the contemplation stage definition on the measure developed by Belding, Iguchi, and Lamb (1996) is the following: used unauthorized drugs in the last 30 days, plan to quit in the next 6 months, but not in next 30 days. This approach locates the individual at a particular stage in the change process. Some researchers have criticized the stage approach for several reasons, including the arbitrary nature of the timelines and a lack of distinction between stages (for a review, see Sutton, 2001).

In contrast, most multidimensional questionnaires provide a score on each of the four or five stage/dimensions (referred to as subscales), thus yielding a readiness for change profile. McConnaughy and colleagues (1983) were one of the first to create a stages-of-change measure, which they applied named the “Stages of Change Scale”; it was later renamed the University of Rhode Island Change Assessment (URICA). The URICA is the most widely
studied measure of readiness for change (Sutton, 2001). One reason is likely due to its focus on a general "problem," whereas other measures specify the target behavior (i.e., smoking) and typically provide a timeline or frequency of usage. Consequently, the URICA can be used to assess change readiness regarding a range of problems. The URICA consists of 32 items and provides a continuous measure of differences in attitude for individuals in each of the four distinct stages of change, thus generating a readiness profile rather than discrete placement at any particular stage (Sutton, 2001).

Another multidimensional measure is the Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES; Miller & Tonigan, 1996). This 20-item measure was developed to assess readiness for change regarding alcohol abuse. The SOCRATES is believed to describe a motivational process rather than a series of stages. A similar measure is the Readiness to Change Questionnaire (RCQ; Rollnick, Heather, Gold, & Hall, 1992). This 12-item measure was developed to assess readiness for change regarding alcohol use.

Some researchers have argued that scores from these three measures do not demonstrate sufficient convergent validity, and thus the scores are not adequately measuring the same underlying stages of change process (for a review, see Sutton, 2001). Despite these criticisms, the multidimensional approaches assessing change readiness, most notably the URICA, continue to be popular among clinicians and researchers.

THE STAGES OF CHANGE

In the following section, we summarize each of the five stages of change, provide a brief description of behaviors and attitudes characteristic of clients at each stage, and offer sample items from the corresponding subscale of the URICA.

Precontemplation

Precontemplation is characterized by lack of problem recognition and no desire to eliminate the behavior. Individuals at this stage are typically unaware (or underaware) of their problem(s); however, their problems are often obvious to family, friends, neighbors, and colleagues. During this stage, individuals tend to put off seeking help or treatment until pressured or forced to by others. They usually feel coerced into changing by those who may be threatening some form of punishment. Although individuals in the precontemplation stage may demonstrate some degree of change when pressured, the problems typically return when the external pressure abates. Prochaska and Norcross (1999) have contended that resistance to recognizing a problem is the hallmark of being in the precontemplation stage. The Precontemplation subscale of the URICA includes items such as “As far as I’m concerned, I don’t have any problems that need changing” and “I guess I have faults but there’s nothing that I really need to change” (McConnaughy et al., 1983).

Contemplation

Contemplation is characterized by an awareness that a problem exists and by serious consideration of behavioral change. Individuals at this stage acknowledge or “own” the problem and have greater awareness of the negative aspects of the problem. Individuals who score high on Contemplation typically evaluate the options that are available to them, but they can become stuck in this stage for extended periods of time. The Contemplation subscale of the URICA includes items such as “I think that I might be ready for some self-improvement” and “I have a problem, and I really think I should work at it” (McConnaughy et al., 1983).

Preparation

Preparation is characterized by the individual’s intention to take action immediately. Individuals at the preparation stage typically demonstrate some small changes or reductions in problem
behaviors. There are no questions on the URICA that specifically measure preparation; however, individuals at this stage typically score high on both the Contemplation and Action subscales.

**Action**

Action is characterized by changes in the individual's behavior, experiences, and/or environment. Action requires considerable commitment, time, and energy, and the modifications of the problem behavior(s) occurring during this stage are typically visible and elicit the greatest amount of external recognition. Successfully altering a problem behavior requires reaching a specified criterion; this may consist of completely desisting from performing the undesirable behavior (e.g., substance use) or adopting the new replacement behavior (e.g., exercising) for a specified period of time, which can range from 1 day to 6 months (McConnaughy et al., 1983). Individuals who score high on Action usually become aware of potential roadblocks that may undermine continued behavior change and therefore develop strategies to prevent lapses or slips (Prochaska & Norcross, 1999). The Action subscale of the URICA includes items such as “I am really working hard to change” and “Anyone can talk about changing; I am actually doing something about it” (McConnaughy et al., 1983).

**Maintenance**

Maintenance is characterized by stabilizing the behavior change and avoiding relapse. The individual builds on gains made during the action stage and works to prevent relapse (Prochaska & Norcross, 1999). At this stage, individuals have usually met some criterion, such as being free of the problem for a specified period of time (e.g., 6 months or more) and/or consistently engaging in a new behavior that is incompatible with the problematic behavior. The Maintenance subscale of the URICA includes items such as “I may need a boost right now to help me maintain the changes that I have already made” and “I'm here to prevent myself from having a relapse of my problem” (McConnaughy et al., 1983).

**DEVELOPMENT AND USE OF THE URICA**

As noted earlier, the URICA (McConnaughy et al., 1983) is one of the most commonly used measures of change readiness (Sutton, 2001). It was developed to assess the change process regarding a variety of health and addictive behaviors as well as the motivational readiness for change in psychotherapy clients. The psychometric properties (i.e., internal consistency) of the subscale scores of the URICA have been examined, but primarily in adult samples (e.g., McConnaughy et al., 1989; McConnaughy et al., 1983).

The URICA was developed by McConnaughy et al. (1983) to be a continuous measure of differences in attitudes and behaviors for individuals in each distinct stage of change; these scores yield a readiness profile (i.e., one score for each subscale; Blanchard, Morgenstern, Morgan, Labouvie, & Bux, 2003). Attempts to define cluster analytic motivational subtypes using the URICA have been met with mixed results and have yielded a variety of clusters (Blanchard et al., 2003; DiClemente & Hughes, 1990; McConnaughy et al., 1989; McConnaughy et al., 1983; Willoughby & Edens, 1996). More recent studies, however, have supported two- or four-cluster solutions and have had “mostly good” concurrent validity (Carney & Kivlahan, 1995; Edens & Willoughby, 1999). Furthermore, mixed findings have been observed when examining the predictive validity of motivational subtypes with regard to substance abuse treatment outcome (Blanchard et al., 2003; DiClemente & Hughes, 1990; Edens & Willoughby, 1999, 2000; Willoughby & Edens, 1996).

Since the development of the URICA, it has been researched extensively with adults with specific health behavior problems, such as difficulty with smoking cessation (DiClemente et al., 1991; Velicer, Hughes, Fava, & Prochaska, 1995), alcoholism (DiClemente & Hughes, 1990; Willoughby & Edens, 1996), substance use (Belding et al., 1996; Siegal, Li, Rapp, & Saha, 2001), weight control problems (Prochaska, Norcross, Fowler, Follick, & Abrams, 1992), and male battering behaviors (Levesque, Gelles, & Velicer, 2000).
Compared with the amount of research examining the use of the URICA regarding discrete, often health-related, behaviors, less has been conducted on readiness for change when beginning psychotherapy. McConnaughy et al. (1983) and McConnaughy et al. (1989) used the URICA in a series of studies investigating the stages of change in adult psychotherapy and found that the measure held promise for use in this context.

Furthermore, nearly all of the published studies on the URICA have focused on adults. Our review of the literature yielded only one study (i.e., Greenstein et al., 1999) in which it was used specifically with adolescents. In the Greenstein et al. study, the URICA was used to assess change readiness in a sample (N = 89) of 12- to 16-year-olds entering therapy in a private psychiatric facility. Their investigation yielded a three-cluster solution that accounted for their data (i.e., Precontemplation, Uninvolved, and Participation). On the basis of their findings, Greenstein et al. concluded that the URICA was an appropriate measure of readiness for change in adolescents who have emotional, behavioral, and/or severe psychological problems.

OVERVIEW OF THE PRESENT STUDY

The current study investigated the value of the URICA as a tool for assessing readiness for change in a sample of incarcerated male adolescents entering brief psychotherapy. Data came from adolescent boys receiving clinical services during their detainment at a regional youth detention facility. It is believed that the forensic context of this study makes it unique: Although these psychotherapy clients were voluntarily entering counseling, they were being held against their will.

More specifically, the following aspects were examined with regard to the present sample of detained adolescents: (a) the psychometric properties (i.e., internal consistency) of scores from the URICA, (b) the theorized stage-like pattern whereby adjacent subscale scores yield higher correlations than subscales that are farther apart, (c) participants' readiness for change profiles (i.e., clusters), and (d) the theorized four-component structure of the URICA. (Due to the limited time [less than 1 month on average] that this adolescent sample had to receive psychotherapy before being released back into the community or transferred to a longer term placement, we could not examine the therapeutic treatment outcome and, thus, the predictive validity of scores from the URICA.)

In addition to providing evidence regarding the psychometric properties of scores from the URICA and its adherence to the theorized transtheoretical model, the present study also discusses the substantive findings in terms of readiness for change in this sample of detained adolescent offenders. Based on the findings of the Greenstein et al. (1999) study with inpatient adolescents, and coupled with our prior clinical experience with adolescent offenders, it was anticipated that the majority of the adolescents in this sample would present a profile indicating high scores on Precontemplation with low scores on the other three subscales. Although several studies indicate the prevalence of clinical problems (e.g., conduct problems, hyperactivity, depression) among incarcerated youths (for a review, see Loeber & Farrington, 1998), detained youths typically eschew the notion that they have any psychological issues or problems that may have increased their likelihood of committing criminal or delinquent acts. Consequently, we anticipated that the present sample would present a profile indicating limited readiness for change.

METHOD

Participants

Participants included 131 male adolescents (59.5% African American, 32.8% Caucasian American, 7.6% Hispanic American), ranging in age from 13 to 17 years (M = 15.3, SD = 1.27), who were incarcerated in a southeastern juvenile detention facility. (The specific length of
incarceration for this sample is not available. The length of incarceration for the facility ranges from 1 day to 1 year and typically varies as a function of offense type and history. Average length of stay is 30 days, although some of these youths are transferred to long-term facilities.) Data regarding the participating adolescents' offense records were collected via the state's electronic Juvenile Tracking System. The offense histories varied considerably, from status offenses to serious offenses against another person. Approximately 11% of participants were currently being detained for drug offenses (e.g., purchase, distribution, possession, or use of a controlled or prohibited substance), 12% for status offenses (e.g., runaway, ungovernable, liquor law violations, violations of probation), 14% for public order offenses (e.g., disorderly conduct, loitering, obstruction of justice), 27% for property offenses (e.g., burglary, shoplifting, arson, destruction of property), and the remaining 36% for offenses against another person (e.g., attempts to commit homicide, forcible rape, robbery, aggravated or simple assault, battery). Based on our prior research with youth from this facility, it is assumed that participants in this study represent a typical juvenile offender population currently being detained by the Department of Juvenile Justice.

Instrument

The instrument used in this study is the URICA (McConnaughy et al., 1983). (A copy of the URICA can be found online at http://www.uri.edu/research/cprc/Measures/Smoking04urica.htm.) As summarized earlier, the URICA has been used to assess the change process regarding a variety of health and addictive behaviors as well as the motivational readiness for change in psychotherapy clients. The URICA includes 32 items that compose four, 8-item subscales purportedly measuring the following stages of change: Precontemplation, Contemplation, Action, and Maintenance. Responses are given on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating greater readiness for change on all scales except Precontemplation; on the Precontemplation subscale, lower scores indicate greater readiness. The URICA has a Flesch-Kincaid reading level of Grade 4.8. To facilitate comparison with previous studies, the URICA was scored in accordance with McConnaughy et al. (1983), McConnaughy et al. (1989), and Greenstein et al. (1999).

Procedure

Within 3 to 5 days of entering the detention facility, each youth was offered the opportunity to meet with a master's-level counseling intern who was receiving graduate training at a local university and to participate in a study that would “help counselors provide more effective services to the youth at this facility.” The counseling intern administered the URICA to each participant during “school time” in a quiet room separate from other youths. Consistent with the directions provided in previous studies using the URICA (e.g., McConnaughy et al., 1983), the participants were told that the “questions on the survey described different ways people sometimes feel about making changes in their behavior.” The participants were instructed to indicate how much they agreed with each statement regarding how they “feel right now” about their behavior related to their incarceration, “not how they have felt in the past or would like to feel.” Participants were also informed that the words here or this place in some of the questions referred to their involvement with the justice system.

The clinicians answered any questions and clarified instructions. A few participants (approximately 3) were excluded from the sample because they were not able to read the instrument; this was determined either through self-reported illiteracy, self-reported problems reading the instrument, or an erroneous response pattern observed by the administering counseling intern. The adolescents were informed during the recruitment that the counselors were from the local university and not employees of the detention center, court, or any other branch of the
justice department. Given the clinicians' status, it is believed that the participants did not feel coerced into receiving clinical services or participating in the study or that their responses were biased in any particular way. No inducements (tangible or otherwise) were offered, and it was explained that there would be no penalty for refusal. Participation was voluntary, and the refusal rate was minimal (i.e., less than 2%). The few adolescents who refused to participate simply reported not wanting to participate in the study; there is no evidence to suggest that the adolescents who refused were different from those who participated. Participants provided consent for the URICA to be used for research purposes. Participants’ responses on the URICA were entered into an electronic database by a graduate research assistant unaware of the study’s purpose or the participant’s conviction status/history.

RESULTS

Using the Statistical Package for Social Sciences (SPSS; Version 12.0) for Windows, descriptive statistics on each of the four subscales were computed for the participants. The mean scores on the subscales were as follows: Precontemplation = 2.82 (SD = .75), Contemplation = 3.42 (SD = .90), Action = 3.51 (SD = .84), and Maintenance = 2.88 (SD = .80). The sample means and standard deviations from the current study, as well as those from the Greenstein et al. (1999) study of inpatient adolescents and the McConnaughy et al. (1983) and McConnaughy et al. (1989) studies of adult psychotherapy patients, are displayed in Figure 1.

Visual inspection of these means suggests that the present sample tended to be higher on the Precontemplation subscale, but lower on the other three subscales, especially the Contemplation and Maintenance subscales. The observed pattern is consistent with our pre-

FIGURE 1

Means and Standard Deviations on Each Subscale of the University of Rhode Island Change Assessment (URICA) in Four Different Samples

Note. Present = Present sample (N = 131 incarcerated adolescent offenders); Greenstein = data extracted from Greenstein et al., 1999 (N = 89 inpatient adolescents); McConnaughy 1 = data extracted from McConnaughy et al., 1983 (N = 155 adults beginning psychotherapy); McConnaughy 2 = data extracted from McConnaughy et al., 1989 (N = 327 adult outpatients ages 18 to 62 years). The error bars indicate a range that is ± 1 standard deviation around the mean for each subscale across the four samples.
diction that due to their current incarceration status and the likelihood of co-occurring psychological problems (Loeber & Farrington, 1998), the present sample would demonstrate a tendency toward Precontemplation and low scores on the other three subscales.

Contrasting the descriptive data extracted from the three other comparison samples, the means for the present sample tended to be most similar to those observed in Greenstein et al.'s (1999) study of adolescents. More specifically, whereas the means from the McConnaughy et al. (1983) and McConnaughy et al. (1989) studies of adults were nearly identical (for three of the four subscales), the means from the Greenstein et al. (1999) sample tended to be half way between the present sample and the two aforementioned McConnaughy et al. studies. In terms of patterns of data, the means for the present sample tended to be most similar to those of the Greenstein et al. adolescent inpatient sample. This might be attributable to similarities between the present study and the Greenstein et al. study with regard to the adolescent population and context (i.e., held against their will).

To assess similarity between these two adolescent samples, we conducted independent samples t tests comparing the summary data from the present adolescent sample with the summary data from the Greenstein et al. (1999) study using the DOS-based Stat-Star program. (This program was used because it allows for comparison between samples based solely on summary statistics. The summary statistics for the inpatient adolescent sample were extracted from Greenstein et al., 1999.) Using the Bonferroni method, the alpha was set at .0125 for each of the four tests (i.e., .05/4). These tests indicated a statistically significant difference on Precontemplation, t(218) = 5.747, p < .0001, d = .79; Contemplation, t(218) = 3.541, p = .00049, d = .49; and Maintenance, t(218) = 3.808, p = .00018, d = .53, but not on Action, t(218) = 1.29, p = .198, d = .18. Despite similarities between the present sample and the Greenstein et al. inpatient adolescent samples, these data suggest that the present sample of incarcerated adolescents is different in some aspects of their readiness for therapeutic change.

In the following sections, data from the present incarcerated adolescent sample are presented regarding the psychometric properties of the URICA, the relations among the subscales, the readiness for change profiles, and a series of exploratory analyses regarding the theorized four-component model of the URICA.

**Psychometric Properties**

Two internal consistency estimates of reliability were computed for scores from the four subscales of the URICA: coefficient alphas and split-half coefficients expressed as Spearman-Brown corrected correlations. The Cronbach’s alphas for the four subscale scores for the present incarcerated adolescent sample were as follows: Precontemplation subscale = .69, Contemplation subscale = .81, Action subscale = .82, and Maintenance subscale = .78. Previous studies using the URICA with adolescent (Greenstein et al., 1999) and adult samples (McConnaughy et al., 1989; McConnaughy et al., 1983) have reported alpha coefficients ranging from .77 to .89 for the four subscale scores.

To compute the split-half coefficient of each of the four subscales, the scales were split into two halves in a way that accounted for item sequence. The Spearman-Brown split-half coefficients for the subscale scores were as follows: Precontemplation subscale = .66, Contemplation subscale = .84, Action subscale = .83, and Maintenance subscale = .81.

There was a relatively high correspondence between the Cronbach alphas and the split-half Spearman-Brown coefficients, thus indicating satisfactory reliability for all four subscale scores except Precontemplation. More specifically, Cicchetti (1994) recommended the following guidelines for reliability estimates when used for clinical purposes: r < .70 (unacceptable), .70 ≤ r < .80 (fair), .80 ≤ r < .90 (good), and r ≥ .90 (excellent). Although the recommended criteria for measures used for research purposes are typically higher (Charter, 2003), according to the Cicchetti guideline, the internal consistency coefficient for the Precontemplation subscale scores is "unacceptable," "fair" for the Maintenance subscale, and "good" for both Contem-
plation and Action. Closer inspection of the descriptives for the Precontemplation subscale indicates the alpha would not increase if any one item was deleted. This suggests that no particular item on this subscale has undue influence over the reliability of the subscale score. Given the marginal level of internal consistency of the Precontemplation subscale scores, findings regarding this subscale are interpreted with caution.

Relationships Among Subscales

Pearson product-moment correlations were computed between the four subscales to assess whether our data followed the theorized stage-like properties. Specifically, the adjacent subscales are theorized to be more closely related than the nonadjacent subscales (McConnaughy et al., 1983), thus we examined the correlations between the subscale scores for the present sample, as well as those from the Greenstein et al. (1999) and the McConnaughy et al. (1983) and McConnaughy et al. (1989) studies (see Figure 2). Inspection of these data reveals that the correlations observed in the present study tended to support the stage theory regarding adjacent subscales. Specifically, there are six correlations between the four subscales of the URICA: Precontemplation with Contemplation (PC), Precontemplation with Action (PA), Precontemplation with Maintenance (PM), Contemplation with Action (CA), Contemplation with Maintenance (CM), and Action with Maintenance (AM; see schematic representation in Figure 2). According to the stage theory, the PC correlation should exceed the PA and CM correlations, the CA correlation should exceed the PA and CM, and the AM should exceed the CM and PM. Thus, the stage theory is supported if all six of these conditions are met.

We tabulated the number of correlations that met the expected pattern and found that five of the six comparisons (83%) held for the present sample. Similarly, we tabulated the correlations for the Greenstein et al. (1999) study of adolescents, and only 66% of these comparisons followed the theorized stage association. The same success rate was observed for the McConnaughy et al. (1989) study, but the McConnaughy et al. (1983) study completely satisfied the postulated pattern. The findings of the present study, along with those of the McConnaughy et al. (1983) study, provide support for the theorized stage-like property of the URICA.

Readiness for Change Profiles

To identify clusters of participants who share similar readiness for change profiles, a hierarchical agglomerative cluster analysis with the Ward (1963) method was conducted on the standardized subscale scores (i.e., T scores). The raw subscale scores were standardized following the linear transformation procedure described by Chase (1976; i.e., $T = 50 + 10z$; also see Wright, 1976). (Using this procedure, the distribution of the transformed data is identical to the original distribution of the raw data.) Following Borgen and Barnett’s (1987) recommendation with regard to identifying the number of clusters based on the sharp peak in the within-group error index, we concluded that a three-group cluster solution was most appropriate for these data. The mean T-score profiles for each cluster are displayed in Figure 3, and the clusters are described as follows.

Cluster 1 (Precontemplators). Participants grouped into the first cluster ($n = 40$) attained mean T scores of 49.72 for Precontemplation, 39.19 for Contemplation, 39.10 for Action, and 41.57 for Maintenance. Participants in this cluster tended to score above the sample average (i.e., $T$ score = 50) on the Precontemplation subscale, but well below the sample average score on the Contemplation, Action, and Maintenance subscales. This trend of having an elevated Precontemplation score in comparison with the other three subscales was a defining feature of participants in this cluster, and thus we labeled the cluster “Precontemplators.” Individuals in this cluster appeared to display ambivalence in acknowledging the existence of a problem, reluctance to change, and a lack of motivation in expending the resources
Schematic Representation of Pearson Product-Moment Correlation Coefficients Between the Four Subscales of the University of Rhode Island Change Assessment in Four Different Samples

Note. PM = Precontemplation with Maintenance; PA = Precontemplation with Action; CM = Contemplation with Maintenance; PC = Precontemplation with Contemplation; CA = Contemplation with Action; AM = Action with Maintenance; P = Precontemplation; C = Contemplation; A = Action; M = Maintenance.

Data extracted from Greenstein et al., 1999; McConnaughy et al., 1983; McConnaughy et al., 1989. **p < .05.
needed to change. This cluster is similar to the Precontemplation cluster found in previous studies (Greenstein et al., 1999; McConnaughy et al., 1989); however, the mean score on the Precontemplation subscale for the present sample was lower for the present study than typically observed in other studies.

Cluster 2 (Undifferentiated). Participants grouped into the second cluster \((n = 61)\) had mean T scores of 56.18 for Precontemplation, 53.23 for Contemplation, 53.58 for Action, and 53.67 for Maintenance. The profile of this cluster is similar to the one McConnaughy et al. (1989) described as "Uninvolved"; they neither ignored nor acknowledged a problem but, nevertheless, avoided taking action and reported minimal readiness for changes. McConnaughy and colleagues (1989) reported that participants in their Uninvolved cluster scored close to the overall sample mean on all four subscales. In contrast, participants in the present sample were slightly above the sample means on all four subscales, thus it seemed inappropriate to label them "uninvolved," because they appeared to be acknowledging the problem and making some changes. Regardless, the slightly elevated Precontemplation score suggests they have not fully committed to the change process. Due to their pattern of scores, which hovered slightly above the sample mean, we labeled this cluster "Undifferentiated."

Cluster 3 (Participators). Participants grouped into the third cluster \((n = 30)\) had mean T scores of 37.81 for Precontemplation, 57.85 for Contemplation, 57.26 for Action, and 53.81 for Maintenance. This cluster is very similar to the Participation cluster that was found by Greenstein et al. (1999), McConnaughy et al. (1983), and McConnaughy et al. (1989). Participants in this cluster tended to score below the sample mean on Precontemplation but above the mean on the other three subscales. Participants in this cluster appeared to be actively thinking about their problem(s), taking steps to change their behavior, and maintaining prior behavioral changes.

We conducted analyses of variance and post hoc tests to assess whether the T scores on the subscales of the three clusters differed statistically significantly. These analyses indicated that Precontemplation, \(F(2, 128) = 70.05, p < .001, \eta^2 = .52\); Contemplation, \(F(2, 128) = 78.46, p < .001, \eta^2 = .55\); Action, \(F(2, 128) = 77.45, p < .001, \eta^2 = .55\); and Maintenance, \(F(2, 128) = 29.54,\)
components differ statistically significantly by cluster. The results of the post hoc examinations are displayed along with cluster group descriptive statistics in Table 1. These analyses suggest that there are statistically significant differences from one another with regard to the mean T scores on the subscales of the URICA.

Component Structure of the URICA

Although traditional scoring methods (Greenstein et al., 1999; McConnaughy et al., 1989; McConnaughy et al., 1983) were used when computing the means, variances, correlations, and internal consistency coefficients, and when conducting the cluster analysis reported earlier, we attempted to explore the component structure of the URICA with this sample. We present preliminary data yielded from a series of principal component analyses. Our rationale for conducting these exploratory analyses was twofold: (a) The URICA has not been used with incarcerated adolescent offenders, and (b) the URICA has only rarely been used with adolescents in psychotherapy. Thus, exploration of the component structure of this scale with the present population seemed warranted. (Although confirmatory analysis seems appropriate in this situation, the small sample size limits the type of factor analysis we can conduct on these data. Further investigation with larger sample sizes is needed.) The present sample is too small to draw firm conclusions regarding a factor analysis (Bryant & Yarnold, 1998); consequently, we present preliminary data regarding the component structure of the URICA.

Three criteria were used to determine the number of components to rotate: the a priori hypothesis that the measure was multidimensional, the scree test, and the pattern coefficients. The scree plot suggested that there were three primary components (Bryant & Yarnold, 1998; Merenda, 1997). On the basis of the scree test and the findings of other studies indicating between two and four components (Carney & Kivlahan, 1995; Edens & Willoughby, 1999), we performed subsequent principal components analyses using two-, three-, four-, and five-component solutions with orthogonal (i.e., Varimax) rotations. We also attempted a single oblique rotation (i.e., oblimin with Kaiser normalization) because adjacent subscales are theorized to be correlated and three of the six correlations between the original subscales were statistically significant (see Figure 1), but this did not result in three correlated components, thus we opted for the orthogonal solution.

The three-component rotated solution most closely corresponded with the theorized structure of the 32-item scale (see Table 2). The Contemplation/Action component accounted for 19.34% of the item variance, Maintenance accounted for 14.82%, and Precontemplation

<table>
<thead>
<tr>
<th>URICA Subscale</th>
<th>Precontemplators (n = 40)</th>
<th>Undifferentiated (n = 61)</th>
<th>Participants (n = 30)</th>
<th>F (df = 2, 128)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>P</td>
<td>49.72</td>
<td>9.30</td>
<td>56.18</td>
<td>5.85</td>
</tr>
<tr>
<td>C</td>
<td>39.19</td>
<td>8.27</td>
<td>53.23</td>
<td>5.86</td>
</tr>
<tr>
<td>A</td>
<td>39.10</td>
<td>9.06</td>
<td>53.58</td>
<td>5.10</td>
</tr>
<tr>
<td>M</td>
<td>41.56</td>
<td>8.77</td>
<td>53.67</td>
<td>6.71</td>
</tr>
</tbody>
</table>

Note. P = Precontemplation; C = Contemplation; A = Action; M = Maintenance. Results of the analysis of variance are reported to indicate differences between the clusters on the URICA. Means on the same row with different subscripts are statistically different at alpha = .05, according to the Tukey post hoc significant difference test.

*p < .001.
### TABLE 2
Summary of Items and Structure Coefficients for Varimax Orthogonal Three-Component Solution for the University of Rhode Island Change Assessment (URICA)

<table>
<thead>
<tr>
<th>Original Subscale</th>
<th>Item</th>
<th>P</th>
<th>C/A</th>
<th>M</th>
<th>(h^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>11. Being here is pretty much a waste of time for me because the problem doesn't have to do with me.</td>
<td>.693</td>
<td>.060</td>
<td>-.117</td>
<td>.497</td>
</tr>
<tr>
<td>P</td>
<td>13. I guess I have faults, but there's nothing that I really need to change.</td>
<td>.655</td>
<td>-.284</td>
<td>.139</td>
<td>.53</td>
</tr>
<tr>
<td>P</td>
<td>1. As far as I'm concerned, I don't have any problems that need changing.</td>
<td>.612</td>
<td>-.021</td>
<td>-.321</td>
<td>.479</td>
</tr>
<tr>
<td>P</td>
<td>23. I may be part of the problem, but I don't really think I am.</td>
<td>.569</td>
<td>.026</td>
<td>.062</td>
<td>.328</td>
</tr>
<tr>
<td>P</td>
<td>5. I'm not the problem one. It doesn't make much sense for me to be here.</td>
<td>.541</td>
<td>.228</td>
<td>-.331</td>
<td>.454</td>
</tr>
<tr>
<td>P</td>
<td>29. I have worries, but so does the next guy. Why spend time thinking about them?</td>
<td>.524</td>
<td>.012</td>
<td>.243</td>
<td>.334</td>
</tr>
<tr>
<td>A</td>
<td>25. Anyone can talk about changing; I'm actually doing something about it.</td>
<td>-.018</td>
<td>.688</td>
<td>.045</td>
<td>.475</td>
</tr>
<tr>
<td>A</td>
<td>10. At times my problem is difficult, but I'm working on it.</td>
<td>-.081</td>
<td>.675</td>
<td>.134</td>
<td>.481</td>
</tr>
<tr>
<td>A</td>
<td>7. I am finally doing some work on my problem.</td>
<td>.033</td>
<td>.665</td>
<td>.227</td>
<td>.495</td>
</tr>
<tr>
<td>A</td>
<td>17. Even though I'm not always successful in changing, I am at least working on my problem.</td>
<td>.079</td>
<td>.664</td>
<td>.131</td>
<td>.465</td>
</tr>
<tr>
<td>A</td>
<td>14. I am really working hard to change.</td>
<td>-.024</td>
<td>.631</td>
<td>.065</td>
<td>.403</td>
</tr>
<tr>
<td>A</td>
<td>30. I am actively working on my problem.</td>
<td>.136</td>
<td>.624</td>
<td>.153</td>
<td>.431</td>
</tr>
<tr>
<td>C</td>
<td>8. I've been thinking that I might want to change something about myself.</td>
<td>-.068</td>
<td>.623</td>
<td>.053</td>
<td>.396</td>
</tr>
<tr>
<td>C</td>
<td>2. I think I might be ready for some self-improvement.</td>
<td>-.209</td>
<td>.576</td>
<td>.037</td>
<td>.377</td>
</tr>
<tr>
<td>M</td>
<td>22. I may need a boost right now to help me maintain the changes I've already made.</td>
<td>-.097</td>
<td>.568</td>
<td>.367</td>
<td>.466</td>
</tr>
<tr>
<td>C</td>
<td>4. It might be worthwhile to work on my problem.</td>
<td>-.081</td>
<td>.534</td>
<td>.198</td>
<td>.331</td>
</tr>
<tr>
<td>C</td>
<td>15. I have a problem, and I really think I should work at it.</td>
<td>-.224</td>
<td>.530</td>
<td>.357</td>
<td>.458</td>
</tr>
<tr>
<td>C</td>
<td>24. I hope that someone here will have some good advice for me.</td>
<td>-.086</td>
<td>.525</td>
<td>.445</td>
<td>.481</td>
</tr>
<tr>
<td>C</td>
<td>19. I wish I had more ideas on how to solve the problem.</td>
<td>-.067</td>
<td>.520</td>
<td>.517</td>
<td>.538</td>
</tr>
<tr>
<td>A</td>
<td>20. I have started working on my problems, but I would like help.</td>
<td>-.155</td>
<td>.520</td>
<td>.485</td>
<td>.529</td>
</tr>
<tr>
<td>A</td>
<td>3. I am doing something about the problems that had been bothering me.</td>
<td>.163</td>
<td>.473</td>
<td>-.170</td>
<td>.279</td>
</tr>
<tr>
<td>C</td>
<td>12. I'm hoping that this place will help me to better understand myself.</td>
<td>-.062</td>
<td>.461</td>
<td>.432</td>
<td>.403</td>
</tr>
<tr>
<td>M</td>
<td>9. I have been successful in working on my problem, but I'm not sure I can keep up the effort on my own.</td>
<td>.117</td>
<td>.362</td>
<td>.216</td>
<td>.191</td>
</tr>
<tr>
<td>M</td>
<td>28. It is frustrating, but I feel I might be having a recurrence of a problem I thought I had resolved.</td>
<td>-.016</td>
<td>.095</td>
<td>.753</td>
<td>.576</td>
</tr>
</tbody>
</table>

(Continued on next page)
### TABLE 2 (Continued)
Summary of Items and Structure Coefficients for Varimax Orthogonal Three-Component Solution for the University of Rhode Island Change Assessment (URICA)

<table>
<thead>
<tr>
<th>Original Subscale</th>
<th>Item</th>
<th>URICA Components</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>P</td>
<td>C/A</td>
<td>M</td>
<td>$h^2$</td>
</tr>
<tr>
<td>M</td>
<td>32. After all I had done to try to change my problem, every now and again it comes back to haunt me.</td>
<td>0.012</td>
<td>0.145</td>
<td>0.706</td>
<td>0.519</td>
</tr>
<tr>
<td>M</td>
<td>27. I'm here to prevent myself from having a relapse of my problem.</td>
<td>0.016</td>
<td>0.129</td>
<td>0.651</td>
<td>0.441</td>
</tr>
<tr>
<td>C</td>
<td>21. Maybe this place will be able to help me.</td>
<td>0.178</td>
<td>0.288</td>
<td>0.608</td>
<td>0.484</td>
</tr>
<tr>
<td>M</td>
<td>18. I thought once I had resolved my problem I would be free of it, but sometimes I still find myself struggling with it.</td>
<td>-0.047</td>
<td>0.360</td>
<td>0.568</td>
<td>0.454</td>
</tr>
<tr>
<td>M</td>
<td>6. It worries me that I might slip back on a problem I have already changed, so I am here to seek help.</td>
<td>0.065</td>
<td>0.108</td>
<td>0.509</td>
<td>0.275</td>
</tr>
<tr>
<td>M</td>
<td>16. I'm not following through with what I had already changed as well as I had hoped, and I'm here to prevent a relapse of the problem.</td>
<td>0.145</td>
<td>0.284</td>
<td>0.481</td>
<td>0.333</td>
</tr>
<tr>
<td>P</td>
<td>26. All this talk about psychology is boring. Why can't people just forget about their problems?</td>
<td>0.386</td>
<td>-0.223</td>
<td>0.467</td>
<td>0.417</td>
</tr>
<tr>
<td>P</td>
<td>31. I would rather cope with my faults than try to change them.</td>
<td>0.365</td>
<td>-0.238</td>
<td>0.399</td>
<td>0.349</td>
</tr>
</tbody>
</table>

Note. Subscales using the traditional scoring method are in the left-hand column. P = Precontemplation; C = Contemplation; A = Action; M = Maintenance. Total percent of variance accounted for by three rotated components = 42.72 ($N = 131$).

accounted for 8.56% of the item variance, for a total of 42.72% of the item variance. These findings indicate that more than 50% of the variance is not accounted for by the three- (42.72%) or even the four-component solutions (47.34%). Also of great concern are the relatively low communalities, which ranged from .191 to .576 (see Table 2). Although the communalities may be biased by the small sample size, they are very low, thus suggesting that there is considerable error unaccounted for by the three-component solution.

Inspection of the structure coefficients for the current juvenile offender sample in comparison with the traditional subscale items evidenced a few deviations. Two of the eight items from the original Precontemplation subscale (i.e., Item 26, “All this talk about psychology is boring. Why can’t people just forget about their problems?” and Item 31, “I would rather cope with my faults than try to change them”) had coefficients indicating relatively equal correspondence with both the Precontemplation and Maintenance components, whereas the other six items corresponded with the component we labeled “Precontemplation.” Item 21 (“Maybe this place will be able to help me”), which was conceptualized to indicate Contemplation, had greater correspondence with the component we labeled “Maintenance.” In addition, Item 9 (“I have been successful in working on my problem, but I’m not sure I can keep up the effort on my own”) and Item 22 (“I may need a boost right now to help me maintain the changes I’ve already made”) were conceptualized to indicate the Maintenance
subscale but had greater correspondence with the component we labeled “Contemplation/Action.” Finally, there were four items that had structure coefficients indicating that they belonged on both the Contemplation/Action component as well as the Maintenance component (i.e., Item 24, “I hope that someone here will have some good advice for me”; Item 19, “I wish I had more ideas on how to solve the problem”; Item 20, “I have started working on my problems, but I would like help”; and Item 12, “I’m hoping that this place will help me to better understand myself”). Although additional research with larger sample sizes of incarcerated adolescents is needed, these analyses provide preliminary support for a three-component model of readiness for change (i.e., Precontemplation, Contemplation/Action, and Maintenance) in male adolescent offenders.

DISCUSSION

The present study was designed to examine the appropriateness of the URICA for assessing readiness for change in incarcerated adolescent offenders. We focused primarily on some of the psychometric properties of the URICA, the theorized stage-like structure of the measure, the identification of clinically meaningful clusters, and the component structure of the URICA. Given the dearth of research on readiness for change in adolescent offenders, and on adolescents in general, we also provide some information with regard to their general performance on the URICA and discuss some possible implications for clinical intervention.

Due to their incarceration and assumed co-occurrence of mental health problems (Loeber & Farrington, 1998), we predicted that the present sample would present a similar readiness pattern to the inpatient adolescents studied by Greenstein et al. (1999). Although the present sample followed a somewhat similar pattern of subscale scores compared with the Greenstein et al. sample, the present sample reported statistically significant higher mean scores on Precontemplation and statistically significant lower mean scores on Contemplation and Maintenance (see Figure 1). This pattern of results suggests that these participants were less prepared to make changes with regard to interpersonal problems than inpatient adolescents. Although it is unclear the ways in which the current sample differs from the Greenstein et al. inpatient sample, it is possible the differences may be due, at least in part, to the types of problems experienced by each sample (i.e., internalizing and externalizing behavior problems).

Furthermore, adolescent offenders tend to feel that they have little control over whether or not they “get locked up” (Halliday & Graham, 2000) and often externalize blame for their problems. This external locus of control likely contributes to their hesitation in acknowledging responsibility for their problems, thus delaying the change process. It is also plausible that youths who perceive injustice (e.g., youths who feel unjustly charged or treated by the justice system) would be less likely to assume responsibility for their behavior, acknowledge a problem, or be ready to make any type of change. Although there are numerous environmental and biological factors that contribute to the development of conduct problems (Loeber, Farrington, Stouthamer-Loeber, Moffitt, & Caspi, 1998), many of which are beyond the adolescent’s control, acknowledging responsibility for one’s behavior is an important step in the therapeutic process (McConnaughy et al., 1983).

Regarding psychometric properties, the internal consistency coefficients (i.e., alphas) for scores from three (Contemplation, Action, and Maintenance) of the four subscales were judged to be adequate. However, the internal consistency estimate for the Precontemplation subscale scores was below .70 and thus deemed insufficient. It is clear that at least the Precontemplation subscale of the URICA needs additional consideration when this measure is administered to adolescent offenders. This finding is especially unfortunate given the results summarized earlier on the elevated Precontemplation subscale scores in comparison with other samples. Consequently, these and other findings regarding the Precontemplation subscale are interpreted with caution.
We also explored the theorized stage-like property of the URICA by examining the correlations between each of the adjacent and nonadjacent subscales. This revealed a pattern that was consistent with the theorized stage-like pattern of the URICA (see Figure 2). Although data from the present study tended to support the stage-like relationship between adjacent subscales, only one (i.e., McConnaughy et al., 1983) of the three previous studies we presented for comparison purposes followed this pattern perfectly.

In order to examine the participants' readiness for change profiles, we focused primarily on clusters of youths with similar subscale scores. The cluster analysis evidenced three unique and clinically meaningful groups of adolescent offenders: Precontemplators, Undifferentiated, and Participators. These clusters were largely consistent with those observed by Greenstein et al. (1999). Preferring the name Undifferentiated for this sample to the one used by Greenstein et al. (i.e., Uninvolved), this group of participants demonstrated some intention and readiness for behavior change; however, they were not committed to making behavioral change. They may be experiencing frequent relapses or lack a clear plan for change.

Given the considerable overlap in readiness patterns observed in the present sample and the Greenstein et al. inpatient adolescent sample, these three readiness profiles may prove useful in the conceptualization of adolescents entering psychotherapy.

We also explored the component structure of the URICA with the present sample of adolescent offenders by conducting a series of principal component analyses. Given the number of items on the URICA, we would need a sample of approximately 320 adolescent offenders to make firm conclusions regarding the component structure of the 32-item scale (Bryant & Yarnold, 1998), thus these analyses were conducted for exploratory purposes only. Unlike in previous studies (e.g., McConnaughy et al., 1989; McConnaughy et al., 1983), a clear four-component solution did not emerge, but rather a three-component solution seemed most appropriate for these data. (The only study with adolescent participants—that is, Greenstein et al., 1999—did not report conducting a factor analysis.) Given that more than 50% of the variance was not explained by either the three- or four-component solutions, coupled with the relatively low internal consistency coefficients for some scale scores (e.g., Precontemplation), additional research is needed with larger samples to assess the generalizability of the observed patterns of data to other samples of incarcerated adolescent offenders. Regardless of the aforementioned limitation of our sample size, our data suggest that URICA is multidimensional and may contain between three and four components when used with adolescent offenders.

Closer examination of the three predominant components that emerged from these data indicates that there was considerable overlap between the Action and Contemplation subscales for the present sample. The overlap between acknowledging the problem(s) and attempting to make some change(s) may be attributable to developmental differences between the present sample of adolescents and previously studied samples of adults. Specifically, adolescents may not distinguish between formulating a plan and taking steps to alleviate the problem in the same way adults do.

A second possibility for the merged Contemplation/Action component is related to contextual factors. The act of incarceration might influence the adolescents' behavior in either direction. For example, being incarcerated may have hastened the adolescents' advancement through the stages, such that they have acknowledged their problem(s) and are beginning to make some changes to reduce the likelihood of future interactions with the law. Alternatively, the act of incarceration may have resulted in a setback, whereby the youth was attempting to make some behavioral changes before the incarceration, either through self-change or with the assistance of some other individual (i.e., mentor, probation officer), but the incarceration disappointed the adolescent and set him or her back within the stages of change.

Given the complexities of the offense histories of the adolescents in the present sample and their incarceration at a detention facility, additional research is needed to better understand the process of behavioral change in psychotherapy, specifically for this population. Adolescent offenders might report a desire to change but also feel that they are victims of their socio-economic or volatile familial circumstances. It will also be important to examine how factors
such as locus of control, self-efficacy, and perceived injustice relate to incarcerated adolescents' readiness for change.

In conclusion, this study suggests the possibility of support regarding the appropriateness of the URICA as a measure of readiness for change in incarcerated adolescent offenders. Adolescent offenders' readiness for change likely varies as a function of offense histories (e.g., seriousness of offenses, duration of incarceration) and/or prior involvement with mental health services or youth development programming. Closer examination of the change process might allow for more effective intervention by clinicians, schools, and the justice department. Given the limited number of empirically validated intervention programs for adolescent offenders (Sherman et al., 1998), additional research is certainly warranted.

REFERENCES


