

# Moral Reasoning among Physical Therapists: Results of the Defining Issues Test

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## Abstract

**Background and Purpose.** Although there is extensive literature in other health care fields about the ability to make ethical judgements (moral reasoning), there is a paucity of research addressing the moral reasoning of practising physical therapists. The purposes of this research were to 1) identify the types of moral reasoning used by practising physical therapists as measured by the Defining Issues Test; 2) identify differences in moral reasoning among physical therapists based on educational background, demographic variables, clinical experience, practice setting or expertise in ethics; and 3) compare the moral reasoning of physical therapists with that of other professional groups. **Methods.** The Defining Issues Test of James Rest was used to evaluate moral reasoning. Five hundred thirty-seven physical therapists responded to a mail survey sent to a random sample of 2,000 American Physical Therapy Association members. Twelve physical therapists with expertise in ethics or professionalism completed the same survey. **Results.** The mean postconventional score for the random sample was 41.93. This score was lower than the mean scores of physicians, nurses, medical students, nursing students and dental students established in previous research. Females, ethics experts and those in academic settings had higher postconventional scores. **Conclusions.** Physical therapists scored lower in postconventional moral reasoning than some other professional groups with similar educational background. Factors that may inhibit or enhance the development of moral reasoning among physical therapists and possible consequences of high or low moral reasoning scores in physical therapy require further research. These findings may raise concerns about the entry-level educational curriculum and professional development opportunities in the area of ethics and moral reasoning. Results of this research may also highlight the challenges of evaluation, scholarship and research in physical therapy ethics. Further research and theory development is needed to address the relationships between moral theory and descriptive or empirical research within physical therapy. Copyright © 2010 John Wiley & Sons, Ltd.

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## Keywords

moral judgement; moral reasoning; physical therapy; professional ethics

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## Introduction

One important line of scholarship in professional ethics addresses the ability of professionals to make ethical judgements (moral reasoning). An extensive body of

knowledge focuses on moral reasoning in the professions (Rest and Narvaez, 1994), such as medicine (Baldwin et al., 1996; Adamson et al., 2000), veterinary medicine (Self et al., 1996), nursing (Duckett et al., 1992; Duckett et al., 1997), dentistry (Bebeau and

Thoma, 1994), pharmacy (Latif, 2000; Char, 2009), business (Jurkiewicz and Massey, 1998), accounting (Ponemon, 1992) and public administration (Swisher et al., 2001; Rizzo and Swisher, 2004). However, there is a paucity of research regarding the moral reasoning that practising physical therapists employ to resolve ethical dilemmas.

The purpose of this research was to examine the moral reasoning of physical therapists. In this paper, the terms 'moral reasoning' and 'moral judgment' refer to the cognitive process of determining a right or wrong ethical action (Rest, 1994, p. 24). Rest et al. (1997a, p. 5) describe moral judgement as the 'psychological construct that characterizes the process by which people determine that one course of action in a particular situation is morally right and another course of action is wrong. Moral judgement involves defining what the moral issues are, how conflicts among parties are to be settled, and the rationale for deciding on a course of action.' In other words, moral reasoning is the thought process by which a person sorts pros and cons, conflicting values and competing duties in order to determine a course of action when confronted by an ethical dilemma.

Much of the research in moral reasoning has its roots in the work of Lawrence Kohlberg (1969, 1976, 1981). Kohlberg had proposed that moral reasoning progresses through six stages, each characterized by a different type of moral reasoning: obedience, instrumental egoism, interpersonal concordance, law and duty, consensus building, and social cooperation (Rest, 1994, p. 5).

Extending Kohlberg's insights, James Rest developed the Defining Issues Test<sup>®</sup>(DIT)<sup>1</sup> (Rest, 1993), a 72-item multiple-choice instrument that evaluates moral reasoning based on responses to hypothetical ethical cases. Although the DIT was initially scored using Kohlberg's stages, more recent scholarship by Rest and associates yielded modifications based on over 30 years of DIT data. The resulting 'neo-Kohlbergian' or 'Minnesota' (Rest et al., 1999a; Rest et al., 1999b)<sup>2</sup> perspective is significantly different from Kohlberg's original theory.

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<sup>2</sup> The term neo-Kohlbergian here refers to the perspective of James Rest and associates as articulated in *Postconventional Moral Thinking: A Neo-Kohlbergian Approach* (Rest et al., 1999b). Since this group was based at the University of Minnesota, some have also referred to this approach as the Minnesota approach.

Two differences between the Kohlbergian and Minnesota perspectives are especially important: the use of stages (vs. schema) and the role of moral reasoning in moral behaviour. Kohlberg had theorized that a person's moral reasoning was in one single stage. This perspective has been called the 'hard stage' perspective because one must work totally through one stage before advancing to the next stage. In place of Kohlberg's 'hard staircase' view of six stages, the Minnesota perspective theorizes three schemas that they define as follows (Rest et al., 1999b, p. 136):

A schema is a cognitive structure that consists of the mental representation of some stimulus phenomena, including the relationships among the elements. Schema are general cognitive structures in that they provide a skeletal conception that is exemplified ... by particular cases or experiences. That is, a schema has 'slots' that can be filled in by particular instances.

In other words, a schema provides a 'default' mental framework for interpreting ethical dilemmas. It functions as a type of implicit or tacit knowledge (Rest et al., 1999a, p. 296; Rest et al., 1999b, p. 136; Narvaez and Bock, 2002). While Kohlberg viewed moral development as moving up the six steps of development one step at a time, the DIT framework conceptualizes moral thinking as 'shifting distributions' of moral reasoning. The goal of DIT research is to determine the extent to which a person utilizes personal interest, maintaining norms and postconventional moral reasoning (see Table 1).

Pritchard (1999) notes that the distinctions between the three moral reasoning schemas have important ramifications for professionals. Professionals are expected to move beyond personal interest and act in the interests of patients rather than for self-advancement. Similarly, professionals are expected to abide by state and national laws and to adhere to the codes of ethics and professional standards articulated by the profession (maintaining norms). With regard to the postconventional schema, Pritchard highlights the importance of its 'critical dimension' for professionals (Pritchard, 1999, pp. 399–400):

From the standpoint of professional ethics, it should be evident that the postconventional schema is preferable to the maintaining norms

**Table 1.** Comparison of ethical decision-making criteria for moral reasoning schema (stage descriptions based on Rest et al., 1999a; Rest et al., 1999b)

|                                     | Personal interest<br>(Kohlberg's stages 2–3)   | Maintaining norms<br>(Kohlberg's stage 4)  | Postconventional<br>(Kohlberg's stages 5–6)   |
|-------------------------------------|--|--|---|
| General basis for ethical decisions | Personal stake   | Laws and norms   | Ethical ideals  |
| Criteria for ethical decisions      | How will this affect me or those I care about?   | What do law, authority, tradition, codes, standards dictate? (May be social, cultural or religious.) | Decisions are based on ideals that undergird laws, norms, traditions and authority. Laws, norms and ideals may be limited and are all subject to critical evaluation (Pritchard, 1999, p. 399; Rest et al., 1999a, p. 308; Rest et al., 1999b, p. 41) |
| Example                             | A physical therapist takes a large gift from a patient because he/she needs the money. | A physical therapist bills the maximum allowable under the law.                                      | A physical therapist engages in civil disobedience to protest laws that appear to discriminate against certain groups.  |

schema. Both schemas acknowledge the importance of rules, standards, and shared practices. However, those within the postconventional schema accept an additional burden, namely, that of exercising critical, moral judgment. The absence of this critical feature in professionals would be unfortunate in at least two respects. First, it cannot be assumed that existing laws, rules, standards, and practices cover all areas in which professional judgment is needed... Second, even in relatively stable areas, discretionary judgment is necessary. For example, those who attempt to rely on a professional code of ethics as an algorithm for deciding what to do are likely to be extremely disappointed. Even highly prescriptive codes are rather loosely stated. Although they might contain provisions about conflicts of interest, fidelity to clients or employers, confidentiality, proprietary information, informed consent, or conflicts of interest, none of these terms is defined with sufficient clarity or precision to make professional judgment unnecessary, and novel cases that challenge precedent are always possible.

The second important difference between Kohlberg's position and the Minnesota interpretation of the DIT is in their perspectives on moral behaviour. Rest and associates noted that moral judgement is just one of four components of ethical behaviour: moral sensitivity (recognizing and interpreting), moral judgement (making a judgement about right or wrong), moral

motivation (placing priority on ethical values) and moral courage (perseverance and implementation) (Rest, 1994; Rest et al., 1999a; Rest et al., 1999b). The four component model makes it clear that moral behaviour cannot be reduced to moral judgement alone. For example, a person may be very skilled in making a decision about what ought to be done (moral judgement), but may not be good at implementing the decision.

Extensive research with the DIT has demonstrated that formal education is the best predictor of moral reasoning, with college education playing a particularly important role in the development of postconventional reasoning (Rest and Thoma, 1985; King and Mayhew, 1999). The critical influence of education is reflected in the higher postconventional reasoning scores typically obtained by professionals on the DIT. Carol Gilligan (1982), a research assistant to Kohlberg, believed that the 'care' perspective of females placed them at a disadvantage on 'justice-based' measures of moral judgement such as the DIT (Self and Olivarez, 1993). However, Thoma's review of 56 samples with over 6,000 subjects found that education was almost 250 times more powerful than gender in predicting DIT scores (Thoma, 1986, p. 173).

A number of studies demonstrate that higher postconventional scores are linked with clinical performance. Sheehan et al. (1980) found that moral reasoning scores on the DIT were predictive of the clinical performance scores of paediatric residents. In a similar nursing study, moral reasoning scores explained 34% of the variance in clinical performance scores for

nursing students (Krichbaum et al., 1994). Baldwin and associates (1996) demonstrated that orthopaedic surgeons with higher postconventional scores had fewer malpractice claims. Among pharmacists, DIT scores were a significant predictor of patient care performance scores (Latif, 2000).

There are few studies of moral reasoning in physical therapy (PT). Using a hermeneutic approach, Barnitt and Partridge (1997) found that physical therapists used procedural or diagnostic reasoning and occupational therapists used narrative reasoning. Research with the DIT has focused predominantly on student populations rather than practising physical therapists. Sisola's study of PT students found that DIT scores were predictive of clinical performance (Sisola, 2000). Brockett et al. (1997) reported that relatively few PT students had high postconventional scores. Dieruf's (2004) longitudinal study of physical and occupational therapy students found no significant difference between entry and exit DIT scores (Dieruf, 2004). In contrast, Geddes et al. (2009) reported that moral reasoning scores of occupational and PT students ( $n = 288$ ) were significantly higher at graduation. Wessel et al. (2008) found no differences in DIT scores between students in PT, nursing and health science. To our knowledge, no published study to date has examined the DIT moral reasoning scores of practising physical therapists.

The specific purposes of this research were to 1) identify the types of moral reasoning used by practising physical therapists as measured by the Defining Issues Test; 2) identify differences in moral reasoning among physical therapists based on educational background, demographic variables, clinical experience, practice setting or expertise in ethics; and 3) compare the moral reasoning of physical therapists with that of other professional groups.

## Methods

A computer-generated list of 2,000 physical therapist members of the American Physical Therapy Association (APTA) randomly selected from the membership mailing list served as the sampling frame for this cross-sectional study. The study was also sent to a purposive sample ( $n = 20$ ) of experts in ethics or professional role. Criteria for inclusion in the expert group were demonstrated service, publication or presentation in a national forum on either professional role or ethics in PT

identified through a previous analysis of the PT ethics literature from 1970 to 2000 (Swisher, 2002) and review of state or national conference programs.

The DIT was used to examine moral reasoning. The DIT is a paper and pencil instrument that presents the subject with six moral dilemmas. For example, in one dilemma, Heinz considers whether he should steal expensive medication from a druggist to save the life of his wife who is dying from cancer. Following each dilemma, the subject is asked to rate 12 ethical issues posed by each dilemma and then to rank the four most important of the 12 issues. Each issue represents a moral reasoning schema. Scoring of the DIT yields the P or P% score ranging from 0 to 98, which essentially indicates the percentage of postconventional issues that the subject ranks as most important, and indicates the subject's preference for higher-level moral reasoning. (In this manuscript we will indicate postconventional scores as P% scores to minimize potential confusion with statistical  $p$  scores). While the P% score considers the *rankings* of postconventional items, a newer index, the N2 score, considers not only rankings but also *ratings* (Rest et al., 1997b). Cronbach's alpha for test-retest reliability of the DIT is from 0.7 to 0.8 and the same measure for internal consistency ranges from 0.76 to 0.83 (Rest et al., 1999b, pp. 92–93).

The researcher obtained approval from the institutional review board at the University of South Florida for protection of human subjects before initiating the study. Each person in the random sample of APTA members and the expert sample was mailed a packet containing a short information form, the DIT, the Professional Role Orientation Inventory (Swisher et al., 2004) and a return envelope. The cover letter and information questionnaire informed subjects of the voluntary nature of participation, their rights as research participants and of the intention to publish the results of the research. This paper reports only on the moral reasoning portion of the research; results related to professionalism have been reported elsewhere (Swisher et al., 2004).

Completed DIT results were sent to the Center for Ethical Development for computer scoring. These results and information from the personal information sheet (demographic, organizational and clinical information) were entered into a spreadsheet and analysed with Statistical Package for the Social Sciences 10.0 (SPSS, version 10, SPSS Inc., Chicago, IL). The data were subjected to regression and multivariate analysis

for the purpose of identifying differences in moral reasoning between the various groups. Analysis of variance and *t*-tests were used to further analyse differences identified through multivariate and regression analysis. In order to decrease the possibility of a Type I error (finding a statistical difference that does not actually exist), statistical analysis of differences employed a Bonferroni adjustment. The alpha level of 0.05 was divided by the number of dependent variables (post-conventional, maintaining norms and personal interest moral reasoning), and *p* values were compared with the resulting alpha value of 0.0167 to determine significance. Confidence intervals and one-sample *t*-tests were used to compare the moral reasoning scores of physical therapists with the scores of other groups reported in the literature.

## Results

A total of 537 subjects in the random sample returned usable instruments that passed standard consistency checks, a usable response rate of approximately 27%. This relatively low return rate may reflect the length of time required to complete both instruments in the mailing and a number of surveys that were undeliverable because of address changes. This sample size would allow for detection of an effect size of 0.02 between different educational groups (3–4 groups and power of

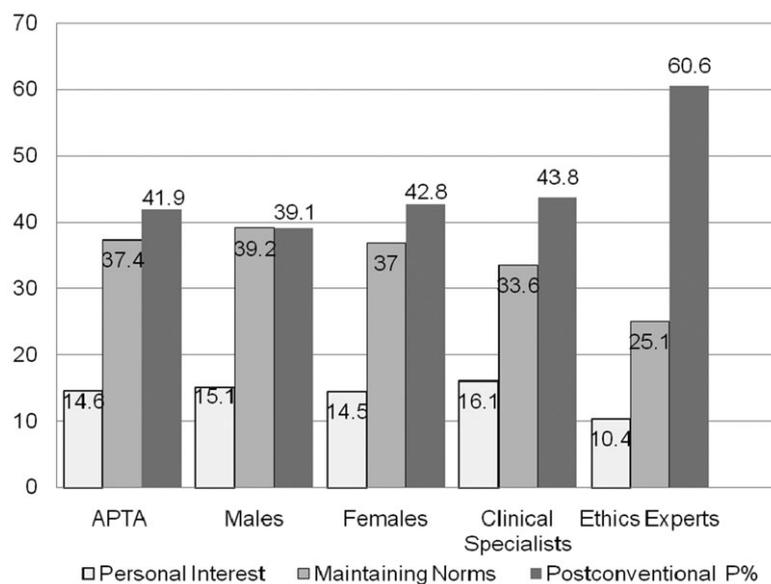
0.80). Given the established effect size for educational interventions of 0.41–0.54 (Rest et al., 1999b, pp. 74–75), this sample size appeared acceptable.

Respondents in the random sample were predominantly white (95.2%) females (74.8%), whose entry-level professional degree was the baccalaureate degree (55.0%). A total of 50.9% of the sample had completed a master's degree and only 4.3% had earned a doctoral degree. The average age of respondents was 38.4 (range = 23–63, standard deviation [SD] = 9.9) years, with 13.1 (range = <1–38, SD = 10.0) years of experience in PT. Compared with the APTA membership (APTA, 2010), this sample had more females, fewer minorities and a greater number of respondents who had earned a master's degree. In addition, more physical therapists in this sample worked in an outpatient setting (APTA, 2004).

The mean P% score for the random sample of physical therapists was 41.9 (range = 13.3–78.3, SD = 13.0). The 95% confidence interval for P% scores was 40.8–43.0. Figure 1 illustrates the proportion of the three types of moral thinking: personal interest, maintaining norms and postconventional for groups within the random sample of practising physical therapists.

Table 2 summarizes the N2 and P% postconventional descriptive statistics for groups within the study.

Females, experts in ethics/professional role and physical therapists who worked in academic settings



**Figure 1** Moral schema mix for groups of American Physical Therapy Association (APTA) members

**Table 2.** Summary of preference for postconventional moral reasoning schema

| Group                      | P% results |           |       |      | N2 results |           |       |      |
|----------------------------|------------|-----------|-------|------|------------|-----------|-------|------|
|                            | <i>n</i>   | Range     | Mean  | SD   | <i>n</i>   | Range     | Mean  | SD   |
| Random sample              | 537        | 13.3–78.3 | 41.93 | 13.0 | 536        | 17.5–75.7 | 46.73 | 11.6 |
| Males                      | 131        | 13.3–66.7 | 39.12 | 12.5 | 131        | 17.7–66.9 | 44.09 | 11.5 |
| Females                    | 389        | 13.3–78.3 | 42.78 | 13.1 | 388        | 17.5–75.6 | 47.59 | 11.5 |
| Caucasian                  | 499        | 13.3–78.3 | 42.24 | 12.9 | 499        | 17.5–74.7 | 47.11 | 11.4 |
| Non-Caucasian              | 25         | 13.3–65.0 | 37.53 | 13.6 | 24         | 17.7–64.7 | 41.18 | 14.1 |
| Clinical specialists       | 47         | 16.7–70.8 | 43.75 | 13.9 | 47         | 17.7–69.8 | 47.28 | 13.4 |
| Undergraduate <sup>a</sup> | 237        | 13.3–78.3 | 41.12 | 12.6 | 237        | 17.5–75.7 | 46.02 | 11.1 |
| Graduate <sup>a</sup>      | 293        | 13.3–76.7 | 42.64 | 13.3 | 292        | 17.7–72.2 | 47.39 | 12.0 |
| Academic employment        | 38         | 18.3–68.3 | 45.34 | 13.8 | 38         | 17.7–71.6 | 51.64 | 11.9 |
| Ethics experts             | 12         | 23.3–75.0 | 60.56 | 14.0 | 12         | 39.0–72.3 | 62.34 | 9.4  |

<sup>a</sup>Highest level of education.

SD = standard deviation.

**Table 3.** Corrected differences in moral reasoning

| Significant findings by grouping | Test              | Value  | Original p value    | Corrected significance of difference <sup>a</sup> |
|----------------------------------|-------------------|--------|---------------------|---|
| Postconventional                 |                   |        |                     |   |
| Experts P%                       | <i>t</i> -test    | 4.906  | 0.000               | Sig   |
| Experts N2                       | <i>t</i> -test    | 4.619  | 0.000               | Sig   |
| Gender P%                        | <i>t</i> -test    | -2.804 | 0.005               | Sig   |
| Gender N2                        | <i>t</i> -test    | -3.017 | 0.003               | Sig   |
| Academic institution N2          | <i>t</i> -test    | 2.717  | 0.007               | Sig   |
| Race N2                          | <i>t</i> -test    | 2.469  | 0.014               | Sig   |
| Maintaining Norms                |                   |        |                     |   |
| Experts                          | <i>t</i> -test    | -3.171 | 0.002               | Sig   |
| Clinical specialist              | <i>t</i> -test    | -2.070 | 0.039               | NS  |
| Personal Interest                |                   |        |                     |   |
| Race — 2 categories              | <i>t</i> -test    | -2.877 | 0.004               | Sig   |
| Years of experience              | Linear regression | -2.016 | 0.044               | NS  |
| Total experiment-wise alpha      | —                 | —      | 0.0352 <sup>b</sup> | —   |

<sup>a</sup>Based on Bonferroni-corrected alpha of 0.0167.

<sup>b</sup>Total experiment-wise alpha for significant differences with Bonferroni correction.

Sig = significant; NS = not significant.

had significantly higher postconventional moral reasoning scores than their counterparts. Experts and clinical specialists used less maintaining norms reasoning, but this difference was not significant for clinical specialists after Bonferroni correction (Table 3). Ethics experts used the greatest proportion of postconventional reasoning, as illustrated by Figure 1.

As indicated by Table 4, physical therapists in this study scored lower on postconventional moral reasoning than medical students, graduate students, nurses, nursing students, occupational therapy students, PT students and dental students in previous studies with the DIT.

## Discussion

Physical therapists in this study utilized less postconventional moral reasoning in resolving the hypothetical ethical dilemmas on the DIT than other professional groups with similar education. Females, ethics experts and physical therapists in academia used more postconventional reasoning. Given the extensive evidence that education increases postconventional reasoning, the lack of significant differences based on education in this study was surprising. One possible reason for these score could be the entry-level educational curricula and professional development opportunities in the area of

**Table 4.** Postconventional moral reasoning (P%) scores for physical therapists and other professionals

| Group <sup>a</sup>   | Mean P% | Significance <sup>b</sup> |
|--|---------|---------------------------|
| Moral philosophy/political science graduate students (Rest, 1994, p. 14) | 65.2    | Sig                       |
| Physical therapy experts in ethics/professional role                     | 60.6    | NA                        |
| Liberal seminarians (Rest, 1994, p. 14)                                  | 59.8    | Sig                       |
| Graduate/Professional students (Rest, 1993, p. 19)                       | 53.3    | Sig                       |
| Medical students (Self and Baldwin, 1998, p. S92)                        | 53.1    | Sig                       |
| Graduating nursing students (Duckett et al., 1997)                       | 50.6    | Sig                       |
| PT Students (Sisola, 2000)   | 47.05   | Sig                       |
| Graduating physical therapy students (Dieruf, 2004)                      | 45.9    | Sig                       |
| Staff nurses (Rest, 1994, p. 14)   | 45.3    | Sig                       |
| Physical therapist clinical specialists                                  | 43.8    | NA                        |
| Female physical therapists   | 42.8    | NA                        |
| College students (Rest, 1993, p. 19)                                     | 42.3    | NS                        |
| Physical therapists in this study  | 41.9    | NA                        |
| Adults in general (Rest, 1993, p. 19)                                    | 40.0    | Sig                       |
| Male physical therapists in this study                                   | 39.1    | NA                        |

<sup>a</sup>Source of data indicated by parenthetical reference.

<sup>b</sup>Significant ('sig') indicates mean for that group is significantly different from the mean P% of physical therapists in the random sample of American Physical Therapy Association members.

Sig = significant; NS = not significant; NA = not applicable, PT = physical therapy.

ethics and moral reasoning, especially as physical therapists seek greater professional autonomy. Purtilo (1978), Guccione (1980) and Triezenberg (1996) have noted that increased professional autonomy results in more complex ethical situations. Findings in this study are consistent with the work of Dieruf (2004, p. 27). She noted that '[t]he lack of change shown in these students may indicate, however, that something in the professional program, the clinical setting, or the environment is inhibiting moral development.' Responding to this statement, Hedl et al. (2005, p. 121) offered the following opinion:

We believe that the lack of change in the occupational therapy and physical therapy groups would be expected given the general nature of allied health programs. Teaching professional ethics (including codes of ethics and ethics in clinical research, among others) is not equivalent to teaching for moral development and moral reasoning. A careful reading of the meta-analysis of moral education interventions with the DIT suggests that significant changes have been found in programs lasting from three to 12 weeks (Schlaefli et al., 1985). This review further reported on the importance of dilemma discussion and time for reflection on critical health issues as instructional strategies.

Further research could establish the extent to which physical therapist education programs include such strategies, and the extent to which other factors (clinical setting, environment, implicit curriculum or other factors) serve to inhibit or facilitate moral reasoning within educational and clinical environments.

In early studies, Self and Baldwin (1998) found that DIT scores failed to increase during medical school. Subsequent studies demonstrated that medical students' moral reasoning scores did increase when exposed to small-group case dilemma discussion (Baldwin et al., 1991; Self et al., 1998a). Self et al. (1998b) found that 20 hours or more of small-group case discussion improved DIT moral reasoning scores, but less than 20 hours did not.

Comparatively low postconventional moral reasoning scores may also reflect a lack of attention to the ethical dimensions of clinical decision making. Finch et al. (2005, p. 147) observe that 'lack of understanding of ethically-based clinical decision-making leads to questionable effectiveness in health care practice...'. In a qualitative study of the ethical decision making of physical therapists, the same authors found that physical therapists did not utilize ethical principles, employ a systematic ethics approach or consult the ethics literature in addressing ethical situations (Finch et al., 2005). Although some states now require continuing education in law and ethics, many continuing education

courses in PT do not attend to the ethical dimension of clinical problems. Results of this study may indicate the need for ongoing and focused consideration of ethical issues in clinical practice and cultivation of moral reasoning in the professional development of physical therapists.

Another possible explanation for the relatively low postconventional moral reasoning scores in this study could be related to limitations in the instrument. Emler et al. (Emler et al., 1983; Emler et al., 1998; Emler and Stace, 1999) have suggested that those with conservative religious or political beliefs may score lower on the DIT. Although some recent research appears not to support Emler's contention that DIT scores can be reduced to political or religious orientation (Thoma et al. 1999; Bunch 2005; Raaijmakers and Van Hoof, 2006; Crowson et al., 2007), it is possible that these variables influenced results of the study.

Results of this study should be interpreted within the context of its limitations. First, the low response rate and demographic differences from the general membership of APTA with the United States warrant caution in generalizing these results to the larger global population of physical therapists. It is especially important to note that the small percentage of minorities (4.8% of respondents) warrants caution in interpretation of differences based on race. Second, the DIT measures the abstract default frameworks that guide our ethical decision making. It does not measure individuals' ability to use 'intermediate' (Bebeau and Thoma, 1999) ethical concepts (informed consent, confidentiality, conflict of interest, autonomy, etc.). Third, results of this study provide insight into only one component of moral behaviour — moral reasoning. They do not tell us about the other components of moral behaviour (moral sensitivity, moral motivation or moral courage). Likewise, they cannot indicate whether physical therapists are 'acting ethically'. A fourth limitation of this research is that respondents were also asked to complete an instrument evaluating their professional role, and it is possible that this influenced their responses to the DIT. Finally, this descriptive study utilized a quantitative approach to the measurement of moral reasoning, and there are undoubtedly aspects of moral reasoning that are more amenable to qualitative or care-based research methods (Greenfield, 2007; Greenfield et al., 2008).

Interpretation of the results of this study implicitly raises the issue of the value of descriptive or empirical

methods in ethics research. Philosophical ethics has traditionally separated 'ought' (normative ethics) from 'is' (descriptive or empirical ethics). Although there has been significant discussion within medical ethics and bioethics about how normative and empirical ethics might interrelate (Molewijk, 2004; Kon, 2009a; Kon, 2009b; Widdershoven et al., 2009a; Widdershoven et al., 2009b), there has been limited discussion of this issue within PT. Further research and theory development is needed to address the relationships between moral theory and descriptive or empirical research within PT.

In the era of evidence-based practice, it is critical to consider how best to measure or evaluate the ability of practitioners to practice in a compassionate and ethical manner. Of course, some would argue that complex value-laden phenomena such as moral reasoning, moral behaviour or moral agency cannot be 'measured' at all. From this standpoint, some might contend that instruments such as the DIT succumb to a kind of positivism or reductionism that undercuts their content validity. However, the Minnesota group has identified numerous links of DIT scores to moral behaviours including community involvement, whistle-blowing and cheating (Rest et al., 1999b, pp. 80–83). It is undoubtedly true that no paper and pencil test or quantitative measure can definitively determine whether someone is ethical. On the other hand, one might argue that the ethical aspects of practice are not dissimilar to a variety of other multidimensional value-laden constructs that have been the focus of research such as, patient satisfaction, function and motivation. From this perspective, it may be important to consider multidimensional research strategies, such as structural equation modelling to evaluate the complex interrelationships between multiple contributors to moral action (see for example, Raaijmakers and Van Hoof, 2006). The belief that ethical issues cannot be evaluated or researched may have a stifling effect on ethical knowledge and moral discourse within the profession of PT.

## Implications

Results of this study indicate that the mean score of postconventional moral reasoning for physical therapists on the DIT in this study was lower than some other professional groups with comparable education. These findings may raise concerns about the educational strategies directed towards moral reasoning

within professional education programs and educational opportunities available for professional development. The factors that may contribute to inhibiting or enhancing the development of moral reasoning among physical therapists and possible consequences of high or low moral reasoning scores in PT require further research. Further research and theory development should address the relationships between moral theory and descriptive or empirical research within PT.

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