

Overview of the Special Issue on Research with the Multidimensional Health Locus of Control (MHLC) Scales

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THIS SPECIAL ISSUE of the *Journal of Health Psychology* begins with my article on the validity of the family of MHLC scales. In that article, I try to show how difficult it is to provide researchers with a simple statement about the scales' validity, despite the fact that the literature is replete with evidence to support such an assertion. In addition to this overview and my article on validity, the Special Issue contains nine articles, most of which present new findings using one or another of the MHLC scales.

An exception to the empirical contributions in this Special Issue is an invited commentary by Luszczynska and Schwarzer containing a well-reasoned review of the MHLC construct and its measurement. In their commentary, Luszczynska and Schwarzer compare the construct of locus of control as applied to health to the construct of self-efficacy applied to health. Although these two constructs are conceptually related, the differences between them are important, and Luszczynska and Schwarzer argue, as I have elsewhere (Wallston, 1992), that self-efficacy may be a more critical construct to assess when predicting health behavior change. I agree with that argument if an investigator has to make a choice between measures of one or another of those two constructs. From a theoretical standpoint, however, it would be preferable to assess both self-efficacy and health locus of control beliefs, and to examine interactions among them to predict behavior.

Luszczynska and Schwarzer also recommend further refinement of the MHLC construct and

scales, a point independently endorsed by Baken and Stephens' contribution in which they suggest that further development of the construct include two distinct aspects of control beliefs: strategy and capacity. Baken and Stephens tested a new, multidimensional measure of perceived control that includes strategy and capacity beliefs about ability, family, friends, money and luck as sources of control on 592 people sampled from the general population of New Zealand. In the Baken and Stephens study, Form A of the MHLC was used to validate their new Multidimensional Sense of Control Scale. Using the MHLC scales to validate another instrument is often done. Such an endeavor is a two-way street; any use of the MHLC scales, even to validate a 'competing' instrument, adds to the body of evidence regarding the validity of the MHLC itself.

In addition to recommending further refinement of the MHLC scales, Luszczynska and Schwarzer also call for greater cultural sensitivity in the refinement and application of the MHLC. Malcarne, Fernandez and Flores administered Form A to an ethnically diverse sample of college students comprising 1122 Caucasian Americans, 281 Filipino Americans and 462 Latino Americans. When Malcarne et al. attempted to use confirmatory factor analysis to validate the original three-factor structure of Form A, they were unable to do so. However, by eliminating some of the troublesome items Malcarne et al. were able to develop shortened versions of the subscales that did, indeed,

successfully reproduce the original three-factor structure across all three ethnic groups represented in their sample. Interestingly, Filipino Americans scored high on all three of the dimensions and even higher than the other two groups. This points out that it is quite possible that people from a given ethnic background can simultaneously hold both internal and external belief orientations regarding their own health status.

With one exception (the final article by Kevin Masters and myself), the remaining articles in this Special Issue all studied samples of individuals with a chronic and/or serious medical condition, and many of those studies heeded the postulate that, when it comes to the MHLC scales, the action is, indeed, in the interaction (Wallston, this issue; Wallston & Smith, 1994). Ai, Peterson, Rodgers and Tice explored the ability of two faith factors, subjective religiosity and using private prayer for coping, to predict internal health locus of control (IHLC) beliefs in a sample of 202 middle-aged and older patients undergoing major cardiac surgery. In their study, the *dependent* variable was assessed by Form A of the MHLC scales. Unfortunately, when Ai and her colleagues began their data collection, they were not aware of the existence of the God Locus of Health Control (GLHC) subscale, so they were not able to relate religiosity and prayer to their patients' belief that God controls their health status. Nevertheless, after controlling for a number of background variables, Ai et al. have shown that the two aspects of faith, although highly positively correlated with one another, are related differently to their patients' IHLC scores.

Cvengros, Christensen and Lawton administered Form A along with a measure of depressive symptoms to 207 patients with chronic kidney disease at two time periods: baseline and follow-up, approximately 16 months later. At follow-up, the kidney disease for 93 of the patients had progressed to end-stage renal disease, requiring them to begin renal dialysis. For the patients on dialysis, increases in IHLC scores over the 16-month period predicted depressive symptoms at follow-up, but this was not the case for the patients whose condition was not severe enough to be placed on dialysis. The results found by Cvengros et al. not only underscore the complexity of relationships

involving the MHLC scales, but also the importance of conducting longitudinal studies where investigators can examine *dynamic* relationships among variables and not just static (cross-sectional) associations. This work also illustrates the importance of including indicators of disease progression as potential moderators of relationships between MHLC scores and outcomes.

Naus, Price and Peter administered Form C of the MHLC with the GLHC items embedded as a measure of breast cancer locus of control beliefs to 109 early-stage breast cancer survivors. They hypothesized, and found, that the relationship between breast cancer locus of control beliefs and depressed mood is moderated by anxiety. Depressed mood was consistently higher for highly anxious patients, but the strength of this relationship varied as a function of survivors' beliefs about the locus of control of their cancer. Although Naus and her co-authors prefer to look at their findings as support for anxiety as the moderator, an argument can also be made for locus of control beliefs moderating the relationship between anxiety and depression.

It is one thing to relate MHLC scale scores to measures of other psychological constructs—such as depressive symptomatology—but quite another to show that MHLC scores can be used to predict 'hard' health outcomes, such as survival. Burker, Evon, Galanko and Egan administered Form A to 100 patients with end-stage lung disease before they underwent lung transplantation, then used those three baseline MHLC scores to predict length of survival time post-transplantation using survival analysis. Although the two external dimensions did not predict survival, Burker et al. found that the patients with medium or higher levels of internal health locus of control beliefs prior to lung transplantation lived longer post-transplantation than those with low scores on the IHLC subscale. Any time a measure of a psychological construct can predict who will live and who will die following a medical procedure, it is worth noting, and, of course, replicating. This study also is noteworthy in its use of survival analysis to analyze MHLC data, an epidemiological technique that is underemployed by health psychologists.

Laboratory values are another type of 'hard data' for health psychologists. Researchers who study individuals with diabetes mellitus use

glycosolated hemoglobin (HbA1c) as an indicator of disease status (i.e. diabetes control) and, also, as an indirect measure of patients' adherence to their diabetes regimen. O'Hea, Grothe, Bodenlos, Boudreaux, White and Brantley administered Form C (with the GLHC items embedded) to 109 patients with type 2 diabetes and related the scores on these five subscales to how well the patients adhered to their regimen over the previous two–three months (i.e. their HbA1c values). What is so unique about the approach used by O'Hea et al. is that they examined interactions among the MHLC/GLHC subscales to predict HbA1c, instead of merely looking at the additive effects of the separate subscales. Of the 10 different possible two-way interactions, O'Hea and her colleagues found four significant interactions among the five subscales that predicted adherence, three of which predicted *unique* variance in adherence when included in a multivariate analysis. This study illustrates that among the potential moderators of MHLC dimensions are scores on the *other* MHLC dimensions, thus paving the way for new analytical studies using new (or even existing) MHLC data.

Finally, the article by Masters and Wallston introduces another analytical technique—canonical correlation—to the repertoire of analytic strategies available for health locus of control researchers. Analyzing a data set in which Form A (with the GLHC items embedded) was administered to 659 college students, Masters and Wallston demonstrate how this most general multivariate regression technique can simultaneously relate a set of MHLC/GLHC subscale scores to another set of multidimensional measures (such as the COPE, the PANAS or a Values Survey). Many researchers in the past might have shied away from using canonical correlation due to the complexity of the relationships it assesses and the output generated. However, as research questions become more complex, analytic techniques commensurate with the task at hand are needed. Hopefully, Kevin Masters and I have done an adequate job of illustrating the utility of canonical correlation, and I look forward to others applying this analytical technique to their own data sets.

Conclusion

The two non-empirical articles in this Special Issue provide a critical examination of the validity and utility of the MHLC scales. The eight empirical articles in this Special Issue add to the validity evidence for the family of MHLC scales and also provide illustrative examples of additional statistical procedures that can be applied to MHLC data. One of the main themes that cuts across *all* of the articles is that the relationship between MHLC scale scores and measures of other constructs is far from straightforward, thus making it difficult, if not impossible, to come up with an easy answer to the question raised in my validity article, 'Are the MHLC scales valid?' I am afraid that there are no shortcuts for potential users of the MHLC scales; the hundreds of published articles containing scores from the scales need to be selectively, and carefully, examined to come up with the validity evidence needed to support a specific use in a particular study. This Special Issue adds a number of articles to the burgeoning literature on the MHLC that should stimulate new and innovative approaches to analyzing MHLC data.

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