CEMETR-2023-01
JANUARY 2023

CEME Technical Report

The Center for Educational Measurement and Evaluation

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A PUBLICATION OF THE CENTER FOR EDUCATIONAL MEASUREMENT AND EVALUATION

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Abstract

To test hypotheses in cross-cultural studies, it is necessary to investigate whether results might be affected systematically by language or cultural effects. In this paper the results of differential item functioning (DIF) analyses for the Perceived Stress Scale (PSS), the Preventive Resources Inventory (PRI), and the Brief COPE are presented. Data from N = 860 German and Singapore social work students were analyzed using the Rasch Partial Credit Model by comparing item difficulties. Large DIF was found in 3 of the 10 items from the PSS, in 15 of 82 items from the PRI and in 5 out of 28 items from the Brief COPE. Implications for the use of the measures are discussed.

Identifying Cultural Differences in Responses to Stress-related Measures in German and Singaporean Social Work Students

Social work is both an academic discipline and a practice-based profession adhering to "*the principles of social justice, human rights, collective responsibility and respect for diversities*" (IFSW, 2014). Social workers around the world adhere to these shared values and attempt to implement them through similar methods. The key practices of the social work professions used around the globe are case-work, group work and community work. However, there are many differences in social policies, economic, historical and political contexts as well as in the professional role, function, and public perception of social work between geographically diverse countries and cultural contexts (Healy & Meager, 2004; Weiss et al., 2004).

Differences in people's thought systems, worldviews, and cognitive processes can explain their differing attitudes and beliefs as well as their values and preferences. According to Nisbett (2003) observational and survey research documents that different social practices correspond with different thought patterns. For example, Ji et al. (2000) and Nisbett et al. (2001) were able to distinguish between interdependence (seeing oneself as embedded in relationships with others) and independence (seeing oneself as disconnected from others). Asian cognition has been described as more holistic, thus Asians pay more attention to the complexity of things. Westerners on the other hands, focus more on objects and are control oriented (Masuda & Nisbett, 2001).

The collective nature of Asian society is consistent with their belief that things are highly complex and depend on multiple factors. The individualistic nature of Western society corresponds with their "*belief that they can know the rules governing objects" and that they can therefore control their behavior* (Nisbett, 2003, p. xvii).

The social axiom construct is a frequently used framework for better understanding of different behaviors across diverse cultures (Leung & Bond, 2004). Leung et al. (2002) defined

social axioms as general beliefs about the social world. These general beliefs can include 1) social cynicism, a belief that manipulation is an effective strategy to get ahead of others (Leung et al., 2002) and a negative view of both human nature and the social world (Leung et al., 2011), 2) reward for application, a belief that positive outcomes and success are contingent on effort, knowledge, and careful planning, 3) social complexity, the belief that there are various possible solutions to conflicts, 4) fate control, the belief that events can be controlled by oneself and can be predetermined, and 5) religiosity, the belief in a supernatural being and that religious practice will have a beneficial function (Leung et al., 2002).

With respect to researching cross-cultural differences, it is crucial that researchers make an assumption of measurement invariance across cultural and linguistic contexts. They assume the underlying construct validity of the measures remains constant across cultural and linguistic contexts, the underlying factor structure of each measure is the same across subgroups, and each source of data is measuring the same underlying constructs for each subgroup. This assumption allows researchers to interpret any subgroup differences as substantive differences in responses, rather than artifacts of measurement error.

Social work is a profession with a high risk for burnout and other stress related health hazards (Heisig, et al., 2009; Truter, et al., 2017). Equipping students with methods for self-care and stress prevention are important for long term psychological well-being. If stress and stress prevention measures yield different results in different cultures, there may be several factors involved. There can be substantial differences in understanding of the constructs measured, and linguistic or cultural differences that relate to differences in response patterns. Before data of different groups can be compared to each other, it is essential to find out whether such differences are the result of differential item functioning of cultural or linguistic origin. In Singapore four official languages are used: Malay, Chinese, Tamil and English. English is the standard language in business and education.

The current study is part of a larger research project focused on the development of stress-prevention and coping skills in social work students. The larger study addressed the relationships between a series of theoretically connected constructs: stress prevention, perceived stress, and coping strategies. The particular measures used in the study were chosen because they met the following criteria: 1.) designed and validated to measure one of the relevant theoretical constructs, 2.) included an English language version, 3.) included a German language version, and 4.) offered some evidence of validity to support the use of the measure with both German and English-speaking participants. These psychological measures were originally developed for the Anglo-American context.

The purpose of this study was to examine potential differences in responses to three measures covering stress prevention, perceived stress, and coping between samples of Singaporean and German social work students. Specifically, this study was designed to examine the cross-cultural validity of the information yielded by three specific measures of perceived stress, coping, and stress prevention when used with social work students from the two different cultural contexts. Differential Item Functioning (DIF) analyses were used to examine measurement invariance across the two samples. DIF procedures are designed to separate individual performance differences on specific items from individual differences on the overall construct being measured. Evidence for DIF can suggest that a given item may not be interpreted in the same way across the subgroups. DIF analyses can also suggest that items may not be measuring the same constructs for the different subgroups. Evidence for the cross-cultural validity of these measures could facilitate comparisons of the coping strategies in social work students across cultures to extend our understanding of areas where students may need more instructional resources and support.

This study addressed the following research questions:

1. When accounting for overall ability to respond to stress, do social work students from Singapore and Germany respond in the same way to self-report items related

to perceived stress?

2. When accounting for overall ability to prevent stress, do social work students from Singapore and Germany respond in the same way to self-report items related to stress prevention?
3. When accounting for overall ability to respond to stress, do social work students from Singapore and Germany respond in the same way to self-report items related to stress coping?

Methods

Sample

Data were collected at two German universities (n = 407) from two different states. Students at a university in Lower Saxony were given the opportunity to complete an online version of the survey, resulting in an initial response rate of 21%. A paper-pencil version was then given in classes, increasing the response rate to 67%. Other than response rate, there were no differences between responses to the two data collection modalities. The participants in this sample were mostly female (82%) and approximately 24 years old (M=24.22, SD=5.96). The second sample consisted of social work students in Baden-Württemberg. They completed a paper-pencil survey. Most of the participants in this sample identified as female (76.3%) and were approximately 23 years old (M=23.1, SD=3.5). The response rate was 70%. There were no statistically significant differences between the two German samples except for age. The students from the first university were slightly older ($t_{(360)}$=2.410, p<.05).

Online data collection took place at the Singapore University of Social Sciences (SUSS) (n = 451). Three groups of students were surveyed: full-time undergraduates, part-time undergraduates, and postgraduate students. Response rate was approximately 30%. Respondents were mostly female (75.8%) and were approximately 31 years of age on average (M=31.2, SD=11.2). Most participants (62.8%) were under 30 years old. However, 9.5% of participants were over 50, and came from part time and the postgraduate programs.

Measures

The Singapore sample answered the original Perceived Stress Scale (PSS) by Cohen, Karmack, and Mermelstein (1983). The German sample answered the translation by Wolf (1998). The PSS is a 10-item, self-report measure regarding whether situations in one's life are considered stressful (e.g.. *In the last month, how often have you been upset because of something that happened unexpectedly?*). Using a scale ranging from 0 (*never*) to 4 (*very often*), participants report the frequency of stressful situations in the last month. The two-factor scoring strategy was used to create two subscales: Lack of Efficacy and Helplessness (Lambert, Butts, Schwanzer, & Ullrich, 2018). Lambert et al. (2018) also evaluated the internal consistency reliability for the Helplessness scale (α =.73) and the Lack of Efficacy scale (α =.80). Cronbach's alpha for the PSS-10 total score, using the current sample, was .87 (Rasch person reliability (RPR) = .86). Klein et al. (2016) gathered evidence to support the use of the German language version of the PSS-10 and demonstrated acceptable internal consistency reliability with a Cronbach's alpha of .84. Using the current sample, internal consistency was also acceptable for the PSS Helplessness scale score (α = .79, RPR = .78) and the PSS Lack of Efficacy scale score (α = .85, RPR = .85).

To measure stress prevention resources, the Singapore sample answered the original Preventive Resources Inventory (PRI, Lambert, et al., 2006). The German sample took the German version by McCarthy, Lambert, and Ullrich (2008). The PRI consists of 82 items and five subscales measuring Self-Acceptance, Maintaining Perspective, Perceived Control, Social Resourcefulness, and Scanning. Lambert et al. (2006) reported extensive reliability and validity evidence to support the use of the PRI. Their findings included acceptable Cronbach's alpha internal consistency reliability across all scale scores: Perceived Control (α = .90), Maintaining Perspective (α = .87), Social Resourcefulness (α = .82), Scanning (α = .86), and Self-Acceptance (α = .85). Data from the current study demonstrated adequate Cronbach's alpha and Rasch person reliability (RPR) for all scale scores: Perceived Control (α = .93, RPR

= .87), Maintaining Perspective (α = .93, RPR = .82), Social Resourcefulness (α = .89, RPR = .81), Scanning (α = .94, RPR = .87), and Self-Acceptance (α = .89, RPR = .79).

The Singapore sample used the Brief COPE by Carver (1997). In studies with different ethnic groups it demonstrated Cronbach's alpha coefficients between 0.5 and 0.9 (Lee & Mason, 2015). The German sample used the German version by Knoll, Rieckmann, and Schwarzer (2005). The Brief COPE consist of 28 items and can be divided into three subscales: Problem-focused, Emotion-focused and Dysfunctional coping. Baumstarck et al. (2017) found satisfactory internal consistency for those three dimensions with Cronbach's alpha coefficients ranging from 0.71 to 0.82.

Data Analysis

The Linacre Partial Credit Model, an extension of the Rasch rating scale model (Andrich, 1978) and Masters partial credit model (Masters, 1982), was used through the Winsteps software, version 3.81, (Linacre, 2019) to estimate the difficulty for each item. This method yielded diagnostic information about the fit of the data from each item to the Rasch measurement model. Specifically, the fit of each item to its respective scale was evaluated using the Infit and Outfit Mean Square statistics. The reliability of each scale was examined using Cronbach's alpha and the Rasch person reliability and separation indexes. The Rasch family of measurement models assumes unidimensionality, meaning that each scale was measuring a single underlying construct.

The focus of this study was Differential Item Functioning (DIF). DIF procedures investigate the focal and reference groups for interactions between sample characteristics and item responses, while holding overall ability levels of the test takers constant. DIF statistical procedures answer the following research question: Do respondents in the focal and reference groups, with the same overall ability levels, respond in similar ways to each item? Evidence of DIF can suggest the need for further investigation of item content, item interpretation by respondents, construct validity of the items and measure, and potential item bias.

The first step in the process of investigating the presence or absence of evidence for DIF and estimating the magnitude of DIF involved calculating the DIF contrast statistic. This value represented the difference, for each item, between item difficulties that were estimated separately for the focal and reference groups. In this study, the German sample was considered the focal group and the Singapore sample was the reference group. The measures under investigation were developed in English and then translated into German. Given that the language of the surveys used with the Singapore sample was English, that sample was the reference group.

Rasch-Welch *t*-tests were examined for statistical significance. These statistics report whether item difficulty estimates for the two groups are different beyond what would be expected due to measurement error. These tests evaluate a null hypothesis that the DIF contrast statistic is zero against an alternative hypothesis that it is not zero. The Mantel-Haenszel χ^2 statistic was used to examine evidence of potential DIF. These statistics were used to test a null hypothesis of no DIF by producing a probability of obtaining differences between the focal and reference groups as large as or larger than those obtained, given that there is no DIF. Overall ability estimates for each respondent were estimated based on the information from all the items for each measure. The groups were stratified into matching ability levels based on these total ability scores, and responses to each item were compared between the groups within strata. The cumulative difference between the groups across the ability strata was then used to create the χ^2 test statistic.

Finally, the magnitude of the DIF contrast was determined according to the criteria suggested by Zwick, Thayer, & Lewis (1999). These criteria are based on the absolute value of the difference between item difficulties. If both the *t* and χ^2 statistics were statistically significant, and the magnitude of the DIF contrast was less than .43, the DIF magnitude was considered negligible. If both the *t* and χ^2 statistics were statistically significant, and the

magnitude of the DIF contrast was greater than .43 and less than .64, the DIF magnitude was considered intermediate. If both the *t* and χ^2 statistics were statistically significant, and the magnitude of the DIF contrast was greater than .64, the DIF magnitude was considered large. To further aid interpretation, items with difficulty estimates below -.5 (in logit units) were considered easy, -.5 to .5 were considered average, and those with values above .5 were considered difficult. The average item difficulty was set to a value of zero within each scale.

Results

Before applying the DIF procedures, the measurement properties of the item responses from each scale were examined for the entire sample. The Lack of Efficacy scale from the PSS yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .81, person separation index of 2.06, and Cronbach's alpha of .83. All of these statistics were within the acceptable range. The Helplessness scale from the PSS yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .70, person separation index of 1.54, and Cronbach's alpha of .71. The person separation index was below the acceptable range (at least 2.00), and indicates a less than optimal separation of participants along a continuum of ability.

The Dysfunctional Coping scale from the Brief COPE yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .67, person separation index of 1.54, and Cronbach's alpha of .66. The reliability coefficients were below the acceptable range (.70) as was the separation index. The Problem-focused scale from the Brief COPE yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .72, person separation index of 1.59, and Cronbach's alpha of .76. The person separation index was below the acceptable range. The Emotion-focused scale from the Brief COPE yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .67, person separation index of 1.41, and Cronbach's alpha of .71. Both the person reliability and person separation index were below the acceptable range.

The Self-Acceptance scale from the PRI yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .73, person separation index of 1.63, and Cronbach's alpha of .77. The Perceived Control scale from the PRI yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .83, person separation index of 2.20, and Cronbach's alpha of .86. The Social Resourcefulness scale from the PRI yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .76, person separation index of 1.77, and Cronbach's alpha of .76. The Scanning scale from the PRI yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .84, person separation index of 2.27, and Cronbach's alpha of .87. The Maintaining Perspective scale from the PRI yielded adequate Infit and Outfit statistics for all items, a Rasch person reliability of .78, person separation index of 1.88, and Cronbach's alpha of .81. Although all of the reliability coefficients were within the acceptable range, the person separation indexes were not within the acceptable range for three of the five PRI scales.

With respect to the DIF analyses, items with large DIF are presented by scale in Table 1. For the Lack of Efficacy subscale of the PSS, three items met the criteria for large DIF (1, 9, and 10). Negligible DIF was found for the remaining three items (2, 3, and 6). Specifically, item 1 ("In the past month, how often have you been upset because of something that happened unexpectedly?") was relatively easy for Germans to endorse, while it was of average difficulty for the sample from Singapore. Item 9 ("In the past month, how often have you been angry because of things that happened that were outside of your control?") was moderately easy for Germans and moderately difficult for Singapore. Item 10 ("In the past month, how often have you felt that difficulties were piling up so high that you could not overcome them?") was difficult for Germans to endorse and of average difficulty for the sample from Singapore. For the Helplessness subscale of the PSS, no DIF was found.

For the Dysfunctional Coping subscale of the Brief COPE measure, two items met the criteria for large DIF (4 and 11). Item 4 ("I've been using alcohol or other drugs to make

myself feel better.") and item 11 ("I've been using alcohol or other drugs to help me get through it.") showed large DIF in the same direction: average difficulty for the German sample, but high difficulty for the Singapore sample.

For the Problem Focused Coping subscale from the Brief COPE measure, one item met the criteria for large DIF (item 2). Item 2 ("I've been concentrating my efforts on doing something about the situation I'm in.") was of average difficulty for both samples, but was more difficult for the German sample to endorse. For the Emotion Focused Coping subscale from the Brief Cope measure, large DIF was found for five items (5, 15, 22, 27, and 28). Items 27 ("I've been praying or meditating.") was very difficult for Germans to endorse and average for Singapore students, while item 28 ("I've been making fun of the situation.") was very difficult for Singapore students to endorse, but average difficulty for the German students.

For the Self-Acceptance scale of the Preventive Resources Inventory (PRI), large DIF was found for only one item (47). Item 47 ("I can accept the fact that things will not always turn out the way I want.") showed large DIF and was of average difficulty for the German sample and relatively easy for the Singapore sample to endorse. For the Maintaining Perspective scale from the PRI, large DIF was found for six items (3, 7, 43, 44, 57, and 80). Item 3 ("I know how to pick the right coping strategy for the right situation.") was easy for the German sample while average for Singapore. Item 7 ("I see problems as opportunities to learn and grow.") was somewhat easy for Singapore, but of average difficulty for the German sample. Item 43 ("I know how to learn from my mistakes.") was average for Germany, but very difficult for Singapore. Item 44 ("I am able to reduce stress in my life by focusing on my values.") was difficult for Germany, but easy for Singapore. Item 57 ("I keep failures and difficulties in perspective.") was again difficult for Germany but average for Singapore. Item 80 ("I can laugh at myself.") was very easy for Germany, but average for Singapore.

For the Perceived Control scale from the PRI, large DIF was found for two items (28

and 70). Item 28 (“I can learn new tasks.”) was of average difficulty for Germany and easy for Singapore. Item 70 (“I have strengths, which allow me to overcome obstacles.”) was easy for the German sample, but average for the Singapore sample. For the Social Resourcefulness scale from the PRI, large DIF was found for five items (1, 12, 21, 60, and 74) (See Table 6). Item 1 (“I know how to delegate tasks to others.”) showed large DIF. For the German sample this item was difficult, whereas it is of average difficulty in Singapore. Item 12 (“I am able to divide up tasks with others in a way that benefits others.”) also showed large DIF. This item was very difficult for the German sample, whereas it was only somewhat difficult for the Singapore sample. Large DIF was also found in item 21 (“I have others to call upon when needed.”) which was very easy for the German sample, but average difficulty for the Singapore sample.

Item 60 (“I have friends and relatives that can help me avoid trouble in my life.”) was also easy for the German sample and average for Singapore. Item 74 (“I form mutually beneficial relationships with others.”) was also very easy for the German sample but average for the Singapore sample. For the Scanning scale from the PRI, large DIF was found for one item (63; “I am better than most people at anticipating situations that will cause stress.”). It was difficult for Germans to endorse while of average difficulty for the Singapore sample.

Discussion

All of the measures evaluated by the current study met the criteria for inclusion. They purport to measure the relevant theoretical constructs and have yielded evidence of adequate measurement properties in previous studies. However, using the current samples, only three scales yielded evidence of reasonable reliability and not or very limited DIF: Helplessness (PSS), Self-Acceptance (PRI), and Scanning (PRI). Five measures yielded evidence of reasonable reliability and yet substantial DIF: Lack of Efficacy (PSS), Problem-Focused Coping (COPE), Perceived Control (PRI), Social Resourcefulness (PRI), and Maintaining Perspective (PRI). The remaining two measures yielded evidence of poor reliability and

substantial DIF: Dysfunctional Coping (COPE) and Emotion-Focused Coping (COPE). These findings underscore the need for researchers conducting cross-cultural research to look beyond classical measures of internal structure and internal consistency reliability when evaluating the meaningfulness and usefulness of the scores offered by measures. The results of the current study indicate the need for researchers attempting to use the measures evaluated here to exercise caution when interpreting the scores yielded by both Englishspeaking populations outside the Anglo-American context and German speaking populations. Furthermore, these results suggest researchers may need to calibrate scale scores separately for the distinct populations while recognizing that the measures may not be measuring the same constructs for all sub-groups.

These results also suggest that the information yielded by the Brief-COPE may be of limited usefulness with social work students in German speaking contexts as well as in English-speaking contexts outside the Anglo-American context. Further research is needed to examine whether the low reliability and DIF results will impede the ability of educators to use the data from these measures to enhance their understanding of the specific coping and stress prevention strategies that need to be developed in their students. If these measures are to be used to help social work educators identify areas for growth in their students, particularly in the area of coping with and preparing for the stressors of the social work profession, further research will be needed to support the interpretation of scores from these measures for this purpose.

Specifically, the results of this study indicate that respondents with similar overall ability levels in two countries responded differently to a substantial subset of the items. The study highlighted the need for researchers involved in cross-cultural inquiry to be sensitive to the variety of issues that can emerge when self-report measures are used across cultural and linguistic contexts. Among the items found to exhibit large DIF, we will attempt to highlight response patterns related to translation from English to German, cultural differences in

interpretation of item meanings, and issues related to applicability of the item content to both cultural contexts.

For example, it was easier for Germans to endorse items related to excitement or anger. This may be due to a translational issue, i.e., the German translation uses the word "aufgeregt" for the English word "upset". While "upset" can imply negative feelings such as anger or anguish, the German term means excitement, which can be of either negative or positive origin. As for cultural differences, it was easier for Germans to endorse an item related to anger than for Germans. In Asian culture expressing negative emotions may be less acceptable. Singapore with its diverse population of predominantly Chinese, Malays, Indians and others can be representative of the Asian Culture.

As for items from the Dysfunctional Coping subscale from the Brief-COPE cultural reasons may also be responsible. It was more difficult for Singaporeans to agree on using alcohol or drugs. In Singapore, it is very difficult to purchase alcohol which is also expensive due to high taxes. Illegal drugs are difficult to get and their possession is severely prosecuted. In Germany alcohol is a socially more acceptable coping strategy with a different social significance.

The Emotion-Focused Coping items referring to support and understanding from others were also easier for Germans to endorse. In Singapore it may be more common to seek support from the family than from colleagues and friends. Families live closer together in a small country, most family members can be reached within a short distance, and inter-generational households are common. In contrast, items related to religion and spiritual beliefs and practices were of average difficulty for Singaporeans and difficult for Germans. In Singaporean culture religion plays an important role. In Singapore only 17% report that they do not practice religion (Tan, 2016). In Germany about 38% of people are not affiliated with a religious community (fowid 2018).

Finally, the item related to humor was of average difficulty for the German sample and

difficult for the Singapore sample. This difference may be due to a translational issue, i.e., the German item refers to the tendency to use humor as a coping strategy. It means, “I have taken the whole situation with humor” (”Ich habe alles mit Humor genommen”). The English item focuses on ridiculing the situation. This is where cultural considerations come into play: Singaporeans may be more serious and focused, interpreting the use of humor as an inappropriate distraction or lack of focus.

Accepting the fact that things may turn out differently than expected was more difficult for Germans than for Singaporeans. We posit that the ability to accept fate may be related to stronger religious values in Asian culture. We also assume cultural differences to be responsible for Germans agreeing more easily on picking the right coping strategy than Singaporeans in the Maintaining Perspective subscale. German students may display more self-confidence in terms of finding solutions to their problems, while Singaporeans are encouraged to ask for help in order to avoid mistakes. This relates to the fifth axiom in the social axiom construct by Leung et al. (2002) which refers to religiosity and the belief in a supernatural being and that religious practices may be beneficial.

Similarly and not surprisingly it is more difficult for Singaporeans to agree upon knowing how to learn from their mistakes than for Germans. This may be related to a strong emphasis on effort and success in Confucian cultures. However, seeing problems as opportunities to learn and grow was less difficult for Singaporeans to endorse than for Germans. Interestingly, the Chinese character for opportunity is part of the character for crisis or problem. Thus, crisis and opportunity are visually linked, and imply a perspective of strength and growth.

Item 57 (“I keep failures and difficulties in perspective”) was easy for Singapore students, which seems surprising at first. However, PRI items were constructed in the United States. The term “keeping things in perspective” in the American context implies interpreting situations relative to other situations, and keeping an objective viewpoint. The Singapore

interpretation of the term, however, means carefully keeping an eye on a possible failure or difficulty in order to be able to avoid it. This may be a completely different interpretation of the original item meaning.

Five of the 15 items of the PRI-subscale Social Resourcefulness show large DIF: Item 1 ("I know how to delegate tasks to others.") is difficult for Germans. This may be related to the more individualistic German society, where delegating tasks to others is less appreciated than completing them on one's own. Similarly, dividing up tasks with others in a way that benefits others was difficult for both groups and more difficult for Germans. In Singapore as a collective society, much emphasis is put on teamwork. Items related to supportive relationships with friends and relatives were easier to agree with for Germans than for Singaporeans. Support by friends may play a more important role for Germans when coping with stressful situations than for Singaporeans.

For each measure, we have attempted to dissect item-specific findings in order to offer guidance to researchers who use the measures under investigation across cultural contexts. Where indicated, translation issues for the German language versions of the measures need to be addressed by the developers before extensive further use of these measures is warranted. These results also suggest the possibility of modified versions of some of the items for use in Confucian cultural contexts.

All three measures are well validated, but validity established in one context is not generalizable to other contexts. Future research should validate every measure in the specific context and further validate the instrument used in this study across cultures other than Singapore and Germany. One area of use of the measures is to help students learn the skills that help them thrive in the profession. The measures investigated in this study can be used for needs assessments in students. Based on such assessments, students can develop not only more self-awareness about areas for growth but also self-improvement plans for themselves.

Another area of use is for educators. The measures can be used for group assessments to help educators evaluate and understand group needs.

Furthermore, if social work educators, and indeed training programs across the helping professions, are to be effective in developing stress prevention and coping strategies in their students, accurate and valid assessment of student needs is critical. The findings of this study indicate that using self-report measures to assess these skills is a very complex endeavor which can be heavily laden with cultural and linguistic subtleties. Perceived stress, stress coping, and stress prevention are constructs that intersect with various cultural distinctives of western and Confucian societies. For example, the relationship between the individual and society, the individual and their family of origin, and the role of religion and spirituality in personal growth, all intersect with both self-report of coping capacity, and actual work of social workers interceding in the lives of families in crisis. Stress prevention and coping strategies not only equip social workers to survive a stressful profession, but help them model effective problem solving and resilience in the face of crisis for the families they serve.

Therefore, in-depth interviews with practitioners and students from both countries are needed to gain a complete understanding of the needs of social work students, and to explore the specific impact of historical and cultural norms on the response processes evidenced in these findings. Qualitative interviews with students as they reflect about the item content may give further insights into how social work students think about and develop coping strategies that will help them thrive in a stressful occupation. This information, when coupled with the unique cultural and contextual challenges faced by training programs in the two countries, can help inform the development of culturally specific and relevant strategies for infusing stress prevention into the curriculum. Given that all of these measures were originally developed for the North-American cultural context, future studies need to use this group as the reference group.

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Table 1
Results for items with large DIF

Subscale	Item	Item Difficulty Germany		Item Difficulty Singapore		DIF Contrast	*t*	*p*	Mantel Haenszel χ^2	*p*
PSS - Lack of Efficacy	1	-0.54	Easy	0.11	Average	0.66	-5.58	***	25.00	***
	9	-0.38	Average	0.32	Average	0.70	-6.18	***	24.86	***
	10	1.19	Difficult	0.42	Average	0.77	7.45	***	59.76	***
BC - Dysfunctional Coping	4	0.33	Average	1.28	Difficult	0.95	-8.07	***	59.34	***
	11	0.61	Difficult	1.42	Difficult	0.80	-6.39	***	40.47	***
BC - Problem-Focused Coping	2	0.49	Average	-0.25	Average	0.74	5.92	***	24.84	***
BC - Emotion-Focused Coping	5	-0.96	Easy	-0.04	Average	0.92	-10.00	***	83.66	***
	15	-0.81	Easy	-0.14	Average	0.67	-7.41	***	42.95	***
	22	0.99	Difficult	0.04	Average	0.95	11.80	***	100.00	***
	27	1.19	Difficult	0.19	Average	1.00	11.91	***	100.00	***
	28	0.24	Average	1.36	Difficult	1.12	-12.60	***	100.00	***
PRI - Self-Acceptance	47	0.17	Average	-0.51	Easy	0.69	6.09	***	32.48	***
PRI - Maintaining Perspective	3	-0.89	Easy	0.20	Average	1.09	-8.29	***	56.14	***
	7	0.23	Average	-0.42	Average	0.66	5.61	***	27.57	***
	43	0.31	Average	1.26	Difficult	0.95	-7.43	***	58.35	***
	44	0.68	Difficult	-0.63	Easy	1.31	10.50	***	100.00	***
	57	0.85	Difficult	0.08	Average	0.77	6.09	***	30.76	***
	80	-1.15	Easy	0.02	Average	1.18	-9.79	***	67.84	***
PRI - Perceived Control	28	-0.18	Average	-0.97	Easy	0.79	4.52	***	15.56	***
	70	-0.75	Easy	-0.08	Average	0.67	-4.12	***	20.15	***
PRI - Social Resourcefulness	1	0.70	Difficult	0.01	Average	0.69	5.42	***	10.47	*
	12	1.41	Difficult	0.69	Difficult	0.72	5.36	***	23.86	***
	21	-1.05	Easy	-0.13	Average	0.91	-7.29	***	45.36	***
	60	-0.58	Easy	0.09	Average	0.68	-5.65	***	33.07	***
	74	-1.14	Easy	0.00	Average	1.14	-8.82	***	93.66	***
PRI - Scanning	63	0.99	Difficult	0.21	Average	0.78	6.59	***	38.25	***

Note. *** = $p<.001$, ** = $p<.01$, * = $p<.05$.