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المؤلف الرئيسي:	Bakkar, Bakkar S.
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The Impact of the Polarity of Questionnaire Items on Factor Structure and Measurement of the Underlying Trait: The Case of the Psychological Mindedness Scale

Dr. Ali M.Ibrahim
Department of Psychology
College of Education- SQU-Oman
alimi@squ.edu.om

Dr. Bakkar S. Bakkar
Department of Psychology
College of Education- SQU-Oman
bakkar636@gmail.com

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Dr. Ali M. Ibrahim
Dept. of Psychology
College of Education-
SQU- Oman

Dr. Bakkar S. Bakkar
Dept. of Psychology
College of Education-
SQU- Oman

Abstract

The purpose of the study was to investigate the impact of negative items on the factorial structure of the Psychological Mindedness Scale and the measurement of this trait among two contrasting groups supposedly different in degree of attentiveness while responding to negative items of this scale. The sample of the study consisted of 66 college nursing students and 188 students from other colleges of SQU. Exploratory factor analysis resulted in five orthogonal factors. The first two factors were exclusively composed of negative items, and the other three factors were entirely composed of positive items. No gender differences were observed in level of psychological mindedness, but nursing students were more psychologically-minded than other students. While nursing students responded similarly to positive and reverse-coded negative items, other students were not consistent in responding to the two types of items. This discrepancy between nursing and non-nursing students was attributed to the formal medical education of the former group, which probably made them more attentive than the latter group in responding to negative items.

Keywords: psychological mindedness, factor analysis of scale items, positive and negative items.

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أثر قطبية فقرات الاستبيان في البنية العاملية وقياس السمة المتضمنة في مقياس العقلية النفسية

د. علي محمد إبراهيم
قسم علم النفس
كلية التربية– جامعة السلطان قابوس

د. بكار سليمان بكار
قسم علم النفس
كلية التربية– جامعة السلطان قابوس

الملخص

هدفت هذه الدراسة إلي بحث أثر الفقرات السلبية في البنية العاملية لمقياس العقلية النفسية، وقياس هذه السمة لدى مجموعتين متضادتين يفترض اختلافها في درجة الانتباه أثناء الاستجابة لفقرات هذا المقياس. تكونت عينة الدراسة من (66) طالبا وطالبة من كلية التمريض، و(188) طالبا وطالبة من الكليات الأخرى في جامعة السلطان قابوس. وقد أسفر التحليل العاملي الاستكشافي عن خمسة عوامل متعامدة. تكون أول عاملين حصرا من الفقرات السلبية، في حين تكونت العوامل الثلاثة الأخرى من الفقرات الإيجابية. لم تكن هناك أية فروق دالة في الجنس في مستوى العقلية النفسية، إلا أن طلبة التمريض أظهروا ارتفاعا أعلى في مستوى العقلية النفسية عن غيرهم من طلبة الكليات الأخرى. وبينما أجاب طلبة التمريض عن الفقرات الإيجابية والسلبية بنفس الدرجة من الوعي، إلا أن طلبة الكليات الأخرى لم يكونوا متسقين في إجابتهم عن هذين النوعين من الفقرات. وهذا الاختلاف بين طلبة التمريض، وغيرهم من الكليات الأخرى يعزي إلى مستوى التعليم الطبي لطلبة التمريض، والذي يجعلهم أكثر انتباها ووعيا من طلبة الكليات الأخرى أثناء الاستجابة لفقرات المقياس.

الكلمات المفتاحية: العقلية النفسية التحليل العاملي لفقرات المقياس، الفقرات السلبية والإيجابية.

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SQU- Oman

Theoretical Background

One of the most important concepts which deserve in-depth investigation is psychological mindedness. This concept is considered as a crucial determinant and strong indicator of many mental disorders and psychological constructs in personality and mental health. This construct does not appear to have been systematically studied, and this is especially true in adolescent psychotherapy research (Boylan, 2006).

Psychological mindedness (PM) is assumed to be an attribute that contributes to a patient's ability to engage in and benefit from insight oriented psychotherapy. PM was originally defined by Appelbaum (1973, p. 36) as "a person's ability to see relationships among thoughts, feelings, and actions, with the goal of learning the meanings and causes of his experience and behavior." Conte, Ratto and Karasu (1996) defined PM as an attribute of an individual that presupposes a degree of access to one's feelings, a willingness to try to understand oneself and others, a belief in the benefit of discussing one's problems, and interest in the meaning and motivation of one's own and others' thoughts, feelings, and behavior and capacity for change (p. 254). Psychological mindedness was operationalized as the ability to access feelings, openness to new ideas, a willingness to try and understand self and others, and interest in the meaning and motivation of behavior. Hall's (1992) definition introduces the multidimensional nature of PM. She defined it as "reflectivity about psychological processes, relationships and meanings [that] is displayed by ... both interest in and ability for such reflectivity across affective and intellectual dimensions". Farber (1985) stated that PM "may be considered a trait which has at its core the disposition to reflect upon the meaning and motivation of behavior, thoughts, and feelings in oneself and others" (p. 170). Collectively, these definitions suggest that PM is related to ability, personality, motivation, and interest. For the purpose of this study, PM was viewed as a personality

determinant to achieve psychological understanding of the self, and then predict other constructs. A person was considered to be psychologically minded if she or he was able to access feelings, was open to new ideas, was willing to try and understand oneself and others, and had an interest in the meaning and motivation of his or her own and other's behavior (Boylan, 2006).

Boylan (2006) emphasized that the related area of interest, beyond measurement of PM to outcome, was the issue of stability of psychological mindedness within an individual. A review of the literature on PM conveys the impression that a patient's PM is relatively stable and therefore difficult to change. McCallum and Piper (1997) describe PM psychoanalytically as a person's ability to identify dynamic (intra-psychic) conflicts, for example, wishes, anxiety, and defenses and relate them to a person's difficulties.

Recently, Grant (2001) broadened the definition of PM to be more inclusive of cognitive behavioral processes. According to Grant, PM is best conceptualized as a form of meta- cognition, "a predisposition to engage in acts of affective and intellectual inquiry into how and why oneself and/ or others behave, think, and feel the way that they do" (p.12). Grant's model proposes PM is assessed by measuring individuals' metacognitive processes of self-reflection and insight.

Hatcher and Hatcher (1997) developed a measure for assessing psychological mindedness. They define PM as "the capacity to achieve psychological understanding of the self and of others." PM involves the child's growing comprehension of the motives, attitudes, and characteristics of the self and others. According to these researchers, PM is built on both cognitive and emotional skills, and can be seen as a term characterizing children's ability to make sense of themselves and the world in psychological terms. In their view, PM is possible because of the child's and adolescent's increasing ability for abstraction, growing understanding of the self, of mixed emotions, and taking the perspective of the others.

More generally, however, Psychological mindedness, its psychometric properties, and its correlation with other constructs and concepts were investigated and well documented in different research settings related to this area, although these studies were greatly conducted with psychopathic samples.

Piper, Joyce, Rosie, and Azim (1994) completed a study on 99 psychiatric outpatients, most of whom received a diagnosis of affective and personality disorders. It was predicted that psychological mindedness and a group process variable, "patient work," would favorably predict treatment

outcome. Psychological mindedness had an independent, significant relation to improvement on several outcome variables including decrease in psychosocial symptoms, increase in social adjustment, and attainment of personalized target objectives. PM was directly related to favorable outcome on three primary factors: decrease in psychiatric symptomatology, increase in social adjustment and life satisfaction, and decrease in pathological dependency. Conte, Plutchik, Jung, Picard, Karusa, and Lotterman (1990) found results consistent with Piper et al. (1994) investigating the relation of PM to outcome in a group of 44 adult, affectively disordered outpatients.

In a related study, Tasca, Balfour, Bissada, Busby, Conrad, Cameron, Colletta, Potvin- Kent, and Turpin (1999) explored whether three patient variables, PM, interpersonal problems, and chronicity of psychiatric problems would predict completion status in an adult psychiatric day treatment program. Of the 102 patients who entered the program, 57% completed the program and 43% did not. PM was measured via the PMAP (McCallum & Piper, 1990). Most patients had a diagnosis of affective and personality disorders. Patients who completed treatment had significantly higher levels of PM and fewer years (chronicity) of reported psychiatric problems than non-completers.

McCallum, Piper, Ogrodniczuk, and Joyce (2003) explored the relation among psychological mindedness, alexithymia, and outcome in four forms of short-term psychotherapy. The results of this study indicated that the association between PM and alexithymia was small and not significant and therefore empirically independent. The authors speculate that PM may be a more cognitive process and alexithymia a deficit in emotional or experiential processes.

Smith, Kleijn, Trijsburg, Segaar, Van der Staak, Hutschemaekers (2009) conducted a study to describe psychometric properties of the Dutch version of PMS. They assessed construct validity by exploring the relationship of the PM to subjective mood states (emotional reactions) measured by Positive and Negative Affect Schedule. Findings showed that there were significant positive correlations between positive affect and psychological mindedness ($r = .70$, $p < .05$.), and significant negative correlations between negative affect and psychological mindedness ($r = -.25$, $p < .05$.). High positive affect and low negative affect associated with higher psychological mindedness, and low positive affect and high negative affect with lower psychological mindedness. The findings also showed significant relations between PM scores and age, gender and education.

Conte, Ratto and Karasu (1996) conducted two studies. The first examined the factor structure of the Psychological Mindedness (PM) Scale,

and the second reassessed the scale's predictive validity. A principal components analysis (varimax rotation) of the data of 256 psychiatric outpatients produced five factors that accounted for 38% of the variance. A tentative definition of PM based on these factors is proposed. For a subsample of 116 patients who attended at least four psychotherapy sessions, PM was unrelated to levels of functioning and psychosocial symptoms at admission and was positively associated with number of sessions attended, consistent with findings of a preliminary investigation. Not replicated were significant correlations between PM and outcome measures derived from therapists' and an independent rater's evaluations. Initially high PM was significantly related to patients' self-ratings of symptoms and problems after discharge.

Shill and Lumley (2002) found that the reliability (internal consistency) of the total 45-item scale of PM, as measured by coefficient alpha), was .80 (95% confidence interval .77-.83). With respect to convergent validity; there was a significant negative correlation between the PMS and alexithymia measured by the Toronto Alexithymia Scale (TAS), $r = -.309$, $p = .01$. There were also correlations between the factor subscales of the PMS and the subscales reported for the TAS and also between each subscale score and the total score of the other scale. Finally, the total PMS score is significantly negatively correlated with all TAS variables. The authors also found that there were no significant correlations between age and PMS scores, but there were significant differences due to gender and ethnic or racial preferences.

In an attempt to measure PM, a 45-item 'Psychological Mindedness Scale' (PMS) was developed by Conte, Plutchik & Jung (1990) as a short version of Lotterman's 65-item scale which was designed to measure suitability for psychotherapy (Conte et al., 1996). According to McCallum & Piper (1990) this instrument has shortcomings. First, its content validity is unclear, and it includes facets that, although related, are not at the core of PM, such as 'openness to new ideas' and 'capacity to change' (Hall, 1992). In addition, the factorial structure of the scale is not ascertained. Only two studies which examined the PM factorial structure could be located, one was based on psychiatric outpatients (Conte et al., 1996) and the other on undergraduate psychology students (Shill & Lumley, 2002). Although both studies (employing exploratory factor analysis) extracted five major factors, only two of these were conceptually similar. However, the items loading on these conceptually similar factors were not identical. Overall, 27 items loaded on the five factors of Conte et al. (1996) while only 21 items loaded on the factors extracted by Shill and Lumley (2002). Conte et al. (1996)

recommended investigating non-psychiatric populations because factors may differ in a population of people not seeking treatment.

The PM scale employs both positive and negative items. This strategy is usually adopted by constructors of questionnaires in order to reduce the acquiescent response bias which emerges from the tendency of some respondents to agree with all the items. Hence, it is believed that questionnaires with a mix of positive and negatively worded statements force respondents to disagree with some statements (i.e. to be more attentive in responding to any item). Therefore, under the assumption that negative and positive items are essentially equivalent, and by reverse-scoring the negative items, the resulting composite score should have reduced acquiescence bias. However, there is some accumulating empirical evidence that this strategy of including a mix of positively and negatively worded items creates problems. For example, there is such adequate evidence that negatively items produce method variance in factor analysis which is independent of the trait being measured (Ibrahim, 2001; Mehrens & Lehmann, 1984; Nunnally & Bernstein, 1994; Oppenheim, 1992). When conducting exploratory factor analysis of many questionnaires employing both positive and negative items, it was observed that the two types of items mostly loaded in separate factors. It was suggested that this was a methodological artifact probably resulting from carelessness of respondents (Roszkowski & Soven, 2010; Cordey & Sevastos, 1993). Therefore, Roszkowski & Soven (2010) recommended against the practice of including negative items in questionnaires since it leads to ambiguity of the results rather than controlling for response sets. Nevertheless, the practice of employing both types of items in self-rating questionnaires is universally adopted.

Purpose of the Study

The purpose of the present study was to investigate the impact of negative items on the factorial structure of the PMS and on the measurement of this trait among two contrasting groups which are expected to differ with respect to degree of attentiveness when responding to negative items of this scale. It is hoped that the results of this investigation will lend further support to the empirical observation that the polarity of the items have adverse effects on the factor structure of self-rating questionnaires. Moreover, the present study intended to provide evidence regarding the impact of negative items on the measurement of the trait itself among attentive and inattentive respondents. This latter issue was neglected by researchers. Almost all self-rating questionnaires, take the total score of positive and reverse- coded negative items as a measure of the trait underlying the questionnaire.

Research Questions

Specifically, the study was intended to answer the following research questions:

1- What is the factorial structure of the PMS?

2- How does the polarity of the items affect the factor structure of the PMS?

3- Do males and females differ in their levels of PM?

4- How does the polarity of the items affect the PM of nursing students as compared to other students?

5- Are positive and negative items of PM correlated?

6- Do positive and negative items differ with respect to internal consistency?

Method

Sample: The participants of the study were 254 students (129 males, 125 females) from a Governmental university in the Sultanate of Oman. Sixty six students were drawn from the School of Nursing, and the rest (188) were from other colleges of the university.

Instrument: The Psychological Mindedness Scale (PMS; Conte & Ratto, 1997) is a Likert-type scale which was constructed to assess patient suitability for psychodynamic psychotherapy. The PMS consists of 45 items, 20 of them are negatively-worded and reverse-scored. Items are rated using a Likert-type 4-point rating scale ranging from "strongly agree" to "strongly disagree", and weighted 4,3,2,1, respectively. The subject's score on the scale is the sum of all item responses range from 45 to 180. Higher scores indicate greater psychological mindedness. For the purposes of the current study, the PMS was carefully translated into Arabic by the two researchers and the translation was revised by another colleague. This Arabic version was checked for clarity by a panel of faculty members in the Psychology Department.

Procedure: The instrument was administered anonymously to all participants during regular classes. The subjects were assured that the responses they provided would be used for research purposes only.

Data Analysis: All data analyses were carried out using version 18 of SPSS. Exploratory factor analysis was chosen in order to replicate the previous two studies of Conte et al. (1996) and Merton et al. (2002). Although both studies extracted five factors for the PMS, most of these factors were not conceptually identical. Before conducting the analysis in the present study, the data suitability for factor analysis was first ascertained. The internal consistency of the current data obtained from the PMS as measured by

Cronbach's alpha was 0.91. The variables were interdependent according to the results of Bartlett's test of sphericity ($X2 = 4726.02$, $df=990$, $p<.001$). Kaiser-Meyer-Oklin (KMO) measure of sampling adequacy gave an index of .85. Hence, the appropriateness of conducting principal components analysis (Tabachnick and Fidell, 2001) was established, and the scores of the 254 subjects were analyzed using the principal components method with orthogonal (varimax) rotation using the option of inserting 1.0 for each communality of the correlation matrix, followed by the extraction of all factors that had eight values greater than or equal to 1.0. Thus, 12 factors which accounted for 64% of the variance were rotated orthogonally. Five factors were retained after excluding factors with less than three items. Similarly, Conte et al. (1996) extracted 14 factors that accounted for 63% of the variance, and retained five orthogonal factors.

Results and Discussion

The results of exploratory factor analysis are shown in Tables 1 and 2 where the items loading in each of the five factors are indicated by their serial numbers in the PMS.

Table 1
PMS five orthogonal factors extracted in the current study.

Factor	Eigenvalues	Percent of variance	Item numbers
1	5.90	12.82	40, 39, 10, 33, 24, 38, 22, 43, 18, 23, 41 ,14
2	4.32	9.68	25, 7, 37, 42, 17, 13
3	2.59	8.67	20, 21, 27, 26
4	2.31	6.08	30, 31, 29, 28, 32
5	2.18	4.49	6, 8, 4, 9

Table 2

Items comprising each factor along with their loadings and directions

Item No.	Item	Correlation coefficient	Direction
Factor 1			
40.	When you have troubles, talking about them to someone else just makes you more confused.	0.78	Negative
39.	I think what a person's environment (family, etc.) is like has little to do with whether he develops mental problems.	0.77	Negative
10.	When you have problems, talking about them with other people just make them worse.	0.72	Negative
33.	I think that most people with mental problems have probably received some kind of injury to their head.	0.71	Negative
24.	I like to do things the way I have done them in the past. I do not like to try to change my behavior much.	0.70	Negative
38.	If I suddenly lost my temper with someone, without knowing exactly why. my first impulse would be to forget about it.	0.62	Negative
22.	I have never found that talking to other people about my worries helps much.	0.62	Negative
43.	I think that no matter how hard you try, you will never really understand what makes people tick.	0.58	Negative
18.	I get annoyed when people give me advice about changing the way I do things.	0.56	Negative
23.	Often, even though I blow that I am having an emotion. I do not blow what it is.	0.53	Negative
41.	I frequently do not want to delve too deeply into what I am feeling.	0.52	Negative
14.	I find that once I develop a habit, that it is hard to change, even if I know there is another way of doing things that might be better.	0.50	Negative
Factor 2			
25.	There are some things in my life that I	0.79	Negative

Item No.	Item	Correlation coefficient	Direction
	would not discuss with anyone.		
07.	There are certain problems which I could not discuss outside my immediate family.	0.50	Negative
37.	It would be very difficult for me to discuss upsetting or embarrassing aspects of my personal life with people, even if I trust them.	0.73	Negative
42.	I do not like doing things if there is a chance that they will not work out.	0.61	Negative
17.	People sometimes say that I act as if I am having a certain emotion (anger, for example) when I am unaware of it.	0.50	Negative
13.	I am annoyed by someone, whether he is a doctor or not. who wants to know about my personal problems.	0.42	Negative
Factor 3			
20.	If a good friend of mine suddenly started to insult me. my first reaction might be to try" to understand why he was so angry.	0.73	Positive
21.	I think that when a person has crazy thoughts, it is often because he is very anxious and upset.	0.66	Positive
27.	At work, if someone suggested a different way of doing a job that might be better: I would give it a try.	0.63	Positive
26.	Understanding the reasons you have deep down for acting in certain ways is important.	0.58	Positive
Factor 4			
30.	When I learn a new way of doing something. I like to try it out to see if it would work better than what I have been doing before.	0.74	Positive
31.	It is important to be open and honest when you talk about your troubles with someone you trust.	0.63	Positive
29.	I am sensitive for the changes in my own feelings.	0.59	Positive

Item No.	Item	Correlation coefficient	Direction
28.	I have found that when I talk about my problems to someone else. I come up with ways to solve them that I had not thought of before.	0.52	Positive
32.	I really enjoy trying to figure other people out.	0.46	Positive
Factor 5			
6.	I am willing to change old habits to try a new way of doing things.	0.75	Positive
8.	I often find myself thinking about what made me act in a certain way.	0.74	Positive
4.	When I have a problem, when I talk about it with a friend. I feel a lot better.	0.62	Positive
9.	Emotional problems can sometimes make you physically sick.	0.51	Positive

Impact of negative items on the factor structure of PMS:

When the items loading on each factor were investigated, an interesting and conclusive finding was that the first two factors were composed with exclusively negative items (which were reverse-coded before the analysis was conducted), and the other three factors were entirely composed with positive items. This observation is consistent with the recurrent finding that positive and negative items in questionnaires produce method variance in factor analysis (e.g. Ibrahim, 2001; Roszkowski & Soven, 2010).

Factor 1: Most of the 12 items of this factor deal with "benefit of talking to others about personal problems".

Factor 2: Three of the four items of this factor involve "willingness to discuss personal problems with others".

Factor 3: Three of the items of this factor deal with "understanding motivation of behavior of self and others". The other two items are related to "openness to new ideas and willingness to get advice".

Factor 4: The three items of this factor tap different aspects: "openness and honesty when talking about personal problems", "sensitivity to changes in personal feelings", and "benefit of talking to others about personal problems". Hence, it is difficult to give a meaningful name to this factor

Factor 5: Two of the three items of this factor involve "understanding of

inner causes of mental illness".

When the factors extracted by the current study are compared with those extracted by Shill and Lumley (2002), it is found that 22 items loaded in the five factors of the current study compared to 21 items in the study of Shill and Lumley. Moreover, Only 10 items of the 21 items emerging in the study of Shill and Lumley (2002) were also among the 22 items which loaded on the factors extracted in the current study. Four of the five factors extracted in the current study are conceptually similar to four of the five factors extracted by Shill and Lumley. The first factor in both studies consisted of seven items most of which dealt with "benefit of talking to others about personal problems". But, only two items were identical in the two corresponding factors. In Shill and Lumley's study, 71% of the items of this factor are negative items, while in the current study, all seven items are negative (which were reverse-coded). The second factor of the current study is equivalent to the third factor of Shill and Lumley's study: "willingness to discuss problems with others", and all items in these factors are negative, but not all of them are identical in the two studies. The third factor of the current study is equivalent to the fourth factor of Shill and Lumley's study: "interest in meaning and motivation of behavior self and others". In both studies, all items in these two equivalent factors were positive, but only one item was identical in both. Hence, it is concluded that, the factorial structure of PMS is not stable across the two non-psychiatric groups.

Gender differences in psychological mindedness

In the current study, no difference in the total score of PM was observed between males (n=129, mean=75.37, SD=8.32) and females (n=125, mean =75.21, SD=7.96, t=.17, p=.87). This contradicts the results reported by Shill and Lumley (2002) and Nyklicek and Denollet (2009) that females were significantly more psychologically minded than males. In an effort to explain this finding, Nyklicek and Denollet (2009) suggested that: "These (results) are congruent with findings indicating that women are more introspective, more sensitive to feelings, and more emotionally open than men"(p. 41). But, taking into consideration the presence of negative items, we believe that a more reasonable explanation of this finding is that it is possible to suggest that the females in the samples of these researchers were more attentive in responding to the negative questionnaire items than the males, and therefore, correctly responded to these negative items. Moreover, it would have been proper to compare between males and females in the sub-total scores of positive items only. Therefore, in the current study, the sub-scores for the negative and positive items were computed separately, but no differences were observed between males and females in the construct of

PM. These separate analyses for positive and negative items indicated that the two sexes were more psychologically minded when taking into account positive items only (mean for males was 80.66, SD = 8.09 and that for females was 80.56, SD = 6.85). On the other hand, for negative items only, after they were reverse-coded, the mean for males was 68.76, SD = 11.85, and that for females was 68.52, SD = 11.85). It is interesting to note that, responses for negative items are more heterogeneous (for both sexes) than for positive items. This heterogeneity is an indication of randomness of responding to negative items which Cordery and Sevastos (1993) attributed to "carelessness of respondents".

Impact of item polarity on comparison between nursing students and other students:

Nursing students (n=66, mean= 86.39, SD= 6.94) were significantly more psychologically minded than other students (n=188, mean= 78.79, SD=6.11, t= 8.20, $p < 0.001$). This finding can be attributed to the formal medical education of nursing students which affect positively their attentiveness when responding to negative items. Fried & Ferrris (1986) suggested that education level of respondents caused them to respond differently to the Job Diagnostic Survey. It is evident that the two groups in the current study differ with respect to "medical education background" which is quite relevant to the construct being measured.

Correlation between positive and negative items

The Pearson's correlation coefficient between positive and negative items was moderate (0.43). But, when this correlation was computed for each of the two groups of respondents separately, it was negligible for the non-nursing group ($r = -.030$, n=188) while for nursing students it was comparatively relatively high ($r = .69$, n= 66, $p < 0.001$). This clearly indicates that nursing students are more consistent (compared to non-nursing students) in responding to both types of items.

Internal consistency of positive and negative items separately

In order to investigate the impact of the polarity of items on the internal consistency, Cronbach's alpha coefficient was calculated separately for positive and negative items using responses of the total sample. Alpha coefficient for positive items (25 items) was 0.82, and for negative items (20 items) it was 0.92. In other words, negative items are more internally consistent than positive items. The significance of the difference between these two coefficients were tested using the statistic recommended by Feldt (1980) for dependent samples (because the two types of items were administered to the total sample). The t-statistic was 7.32, which was

statistically significant beyond the .001 level. This probably reflects "consistency" of some respondents in carelessly rating negative items. However, when internal consistency coefficients were calculated separately for the two contrasting groups (nursing students and all other students) and for the two types of items, these coefficients for positive and negative items were 0.84 and 0.80, respectively, for nursing students. But, for other students, they were 0.75 and 0.79, respectively. In both groups, the coefficients were slightly different. The internal consistency of the total questionnaire was 0.91. This latter coefficient (which is considerably high) is a very misleading result concerning the reliability of the PMS. If this result is paired with the exploratory factor analysis results (i.e. the emergence of exclusively separate factors for positive and negative items), and the inadequate correlation between positive and negative items, it is clear these two sets of items perform differently although they are hypothesized to measure the same trait.

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