Presenter Disclosures

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The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

Background

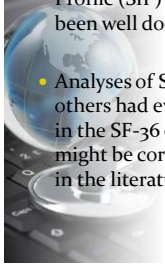
- Study involving predominantly minority population with lower SES to develop and test a public health nursing intervention designed to reduce health disparities.
- The SF-12v2 was administered to all study participants whereas the SIP was erroneously omitted from the first 100 subjects. We set out to determine if the SF12v2 might be a reasonable alternative as a measure of functional status.

Purpose

- This omission caused a careful re-examination of these instruments and elicited some problem-solving around how best to measure functional status.

Review of literature

- Challenges in assessing dimensions of functional status with instruments such as the Sickness Impact Profile (SIP) and various version of the SF-36/12 has been well documented in the literature.
- Analyses of SIP and SF-12 to determine to what extent others had evaluated 'functional status' conceptually in the SF-36 or SF-12v2, and whether the instruments might be correlated with one another were not found in the literature.



Instruments

- SIP consists of 136 questions in 12 categories taking participants approximately 20 minutes to complete.
- The SF-12v2 consists of 12 questions taking 5 minutes to complete, but has no formal functional status subscale.

SF-12v2

- Measures eight health dimensions including:
  - ***Physical functioning***
  - ***Role limitations due to physical health problems***
  - Bodily pain
  - General health
  - Vitality (energy/fatigue)
  - ***Social functioning***
  - ***Role limitations due to emotional problems***
  - Mental health

Component Summary Measures

- Physical Functioning (PF)
- Social Functioning (SF)
- Role-Emotional (RE)
- Role Physical (RP)

- Four subscales in the SF-12v2 conceptually represent both physical and emotional aspects of "function", and could reasonably be combined for use as a composite measure (SF-12v2FUNCT).

Sickness Impact Profile

- Sleep and rest
- Emotional behavior
- Body care and movement
- Home management
- Mobility
- Social interaction
- Ambulation
- Alertness behavior
- Communication
- Work
- Recreation and pastimes
- Eating

Revised Scoring Recommendations

- Pollard and Johnston (2001) published an article entitled *Problems with the Sickness Impact Profile: A theoretically based analysis and a proposal for a new method of implementation and scoring.*
- Logically exclusive items
- Inconsistent scaling/scoring

SIP Scoring Exemplars

Summative Method	Scoring
• "I am eating much less than usual". (037) • "I eat no food at all, nutrition taken through tubes". (133) • "I am drinking less fluids". (036)	037+133+036= 206 206/705 x 100= 29.21 category score

Logically exclusive items

- I make difficult moves with help i.e.. bathtub (084)
- I stand only for short periods of time (072)
- I do not maintain balance (098)
- I am in a restricted position all of the time (125)
- A person with arthritis might score higher than a person who is paralyzed.

SIPv2

- Using the new recommendations using maximum individual weighting from items checked as a category score, we created SIPv2.
- Using Stata SE 11.0, we then compared the relationship between the SIPv1 to the more recently recommended SIPv2 on study participants who did complete the SIP (participants 101-432).

Analyses

- Ultimately, a composite SF-12FUNCT score of the following subscales were compared with the SIPv1 and SIPv2, and with other health-related variables of interest.
  - Role Physical (RP)
  - Role Emotional (RE)
  - Physical Functioning (PF)
  - Social Functioning (SF)

Correlation – SIP and SF-12 (FUNCT)

```
. spearman SIPtotnowork_0 SIPV2totnowork_0 SF12FUNCT100_0 SF12RP100_0
    SF12PF100_0 SF12SF100_0 SF12RE100_0, star(.05)  (obs=415)

             | SIPV1    SIPV2   SFF_0 ~RP_0  ~PF_0  ~SF_0
-------------+------------------------------------------------
SIPV1        |   1.00
SIPV2        |  0.99*  1.0000
SF12FUNCT_ 0 | -0.21* -0.21*  1.00
 SF12RP100_0 |  -0.15* -0.16*  0.84*  1.00
 SF12PF100_0 |  -0.10* -0.10*  0.70*  0.54*  1.00
 SF12SF100_0 |  -0.21* -0.22*  0.70*  0.44*  0.25*  1.00
 SF12RE100_0 |  -0.20* -0.20*  0.80*  0.65*  0.36*  0.51*
```

Analyses

- Results: The SIPv1 and SIPv2 versions were highly correlated (r = 0.99, p<0.001), and did not appear to measure unique or different aspects of functional status.
- The composite SF-12FUNCT was only moderately correlated with either measure of the SIP (Spearman's rho, r= -0.21, p<0.05).

Analyses

- Relationships between other health-related measures such as depression (r= -0.54, p<0.05), total symptoms (r= -0.38, p<0.05), and number of chronic health conditions (r= -0.38, p<0.05) were more robust using the SF12FUNCT.

Conclusion

- Problems with the SIP traditional scoring method (SIPv1) have been highlighted in the literature, with a recommended revised scoring approach (SIPv2).
- Regardless of scoring method, the SIP does not appear to capture variability in functional status in a population with moderate, rather than severe, limitations on daily activities.
- Given these challenges, additional research to succinctly capture functional status is needed.

Conclusion

- Available measures of functional status all have significant limitations as outlined in the literature.
- While not a documented measure of functional status based on SF-12 development, the composite SF-12 is theoretically consistent with a general measure of functional status, appears to correlate more highly with other health measures of interest, and may be a reasonable alternative.

Future Research

- Additional methodological research is needed to assess correlations between SIPv1 with SIPv2 scoring, and further validity and reliability testing of the SF-12FUNCT in other study populations.

Acknowledgements

I would like to express my gratitude and admiration for my Mentor, Dr. Shawn Marie Kneipp. Her expert guidance and support every step of the way made this project possible.

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Appendix A - Cronbach's Alpha / Reliability

- On the 7 items comprising the SF-12v2 FUNCT
  - (at baseline)
- Test scale = mean(unstandardized items)
- Average inter-item covariance: .5742873
- Number of items in the scale: 7
- Scale reliability coefficient: 0.8554

Appendix B - Correlations of SF-12v2 FUNCT, Over Time

```
. spearman  SF12FUNCT100_0 SF12FUNCT100_3
  SF12FUNCT100_6 SF12FUNCT100_9, star(.05)
(obs=225)

             | ~CT100_0 SF12FU~3 SF12FU~6 SF12FU~9
-------------+------------------------------------
SF12FUNCT1~0 |   1.0000
SF12FUNCT1~3 |   0.5003*  1.0000
SF12FUNCT1~6 |   0.4277*  0.6157*  1.0000
SF12FUNCT1~9 |   0.3983*  0.5632*  0.5346*  1.0000
```

. * = significant at .05 level