

## The Author Replies

**To the Editor**—The material by Pares *et al.* points to some of the fundamental issues in publishing material on the creation of measurement instruments. A simple typo can lead to a compromise in utility of the instrument. While a close investigation of Table 2 and the instrument found in Appendix A of the original publication corrects the typo found in the publication, as noted by Pares *et al.*, few people read the literature closely enough to resolve the discrepancy (nor should they be required to). As noted by Pares *et al.*, item Q3c is part of Scale 2 Coping/Behavior. The original publication lists item Q3d.

In addition to the issue identified by Pares *et al.*, there are two other issues associated with the FIQL that have come up over the years, which have been previously addressed in an *ad hoc* fashion. While this information has been readily available to those who request the instrument, it has not been formally summarized in the literature.

The first issue is that the original publication includes a N/A category for response. This was included as part of the instrument development to evaluate the salience of a question in the initial item pool. If the item had a large number of N/A responses, it was not considered in the development of the FIQL. In the use of the instrument it is recommended that the N/A not be used as a response option. If it is used, then for the items in Q2 it should be recoded as 'None of the Time', and for Q3 it should be recoded as 'Strongly Disagree.'

The second issue is relative to scoring of the FIQL. The original Appendix contains a very simple 'How to Score' that, by necessity, was kept short for the original publication. Giving the brevity of this information, the user of the instrument is required to make some decisions about how to score the instrument, which has led to some variance in how the instrument is scored. There are two basic issues associated with this; the coding of Q1 and Q4, and how missing values are dealt with. The first issue, the coding of

Q1 and Q4, will not dramatically alter the results. As indicated in the original information, the reverse coding of Q1 is necessary. Additionally, Q1 as well as Q4 can be converted to 4 point scales. If they are not converted, the range for Scale 3 is from .92 to 4.003, not 1 to 4 as indicated in the original article. To convert Scale 3 to have a minimum of 1 and a maximum of 4 there are two steps required. The response to Q1 should be multiplied by .80 and the response for Q4 by should be multiplied by .67. This conversion still allows for values below 1 and over 4 for each of these items, so responses below 1 are set to 1 and above 4 are set to 4.

The second issue, how missing data are dealt with in scoring, can change the results. There are a number of options for dealing with missing data in scale scoring, although two fundamental issues must be addressed. The first is determination of how many items have to be answered to score the scale, and the second issue is how items without an answer are treated. In working with investigators, we have generally recommended the following rules be employed: more than half the items in the scale should be answered (if less than half the items are answered then the scale is not scored). For those items that are not answered, it is recommended that the conservative approach of using mean imputation be used (the item is given the population mean as a value).

The FIQL instrument as well as the SAS code that can be used for scoring the FIQL is available online (<http://www.hpm.umn.edu/people/regular/rockwood/Rockwood.htm>).

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**Electronic Supplementary Material** The online version of this article (doi:10.1007/s10350-008-9280-x) contains supplementary material, which is available to authorized users.

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## Electronic supplementary material

Below is the image is a link to a high resolution version

### Fecal Incontinence Quality of Life Instrument

Q 1: In general, would you say your health is:

- 1  Excellent  
 2  Very Good  
 3  Good  
 4  Fair  
 5  Poor

Q 2: For each of the items, please indicate how much of the time the issue is a concern for you due to accidental bowel leakage.

Q2. Due to accidental bowel leakage:	Most of the Time	Some of The Time	A Little of the Time	None of the Time
a. I am afraid to go out	1	2	3	4
b. I avoid visiting friends	1	2	3	4
c. I avoid staying overnight away from home	1	2	3	4
d. It is difficult for me to get out and do things like going to a movie or to church	1	2	3	4
e. I cut down on how much I eat before I go out	1	2	3	4
f. Whenever I am away from home, I try to stay near a restroom as much as possible	1	2	3	4
g. It is important to plan my schedule (daily activities) around my bowel pattern	1	2	3	4
h. I avoid traveling	1	2	3	4
i. I worry about not being able to get to the toilet in time	1	2	3	4
j. I feel I have no control over my bowels	1	2	3	4
k. I can't hold my bowel movement long enough to get to the bathroom	1	2	3	4

l. I leak stool without even knowing it	1	2	3	4
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m. I try to prevent bowel accidents by staying very near a bathroom	1	2	3	4
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**Q 3:** Due to accidental bowel leakage, indicate the extent to which you **AGREE** or **DISAGREE** with each of the following items.

**Q3. Due to accidental bowel leakage:**

	Strongly Agree	Somewhat Agree	Somewhat Disagree	Strongly Disagree
a. I feel ashamed	1	2	3	4
b. I can not do many of things I want to do	1	2	3	4
c. I worry about bowel accidents	1	2	3	4
d. I feel depressed	1	2	3	4
e. I worry about others smelling stool on me	1	2	3	4
f. I feel like I am not a healthy person	1	2	3	4
g. I enjoy life less	1	2	3	4
h. I have sex less often than I would like to	1	2	3	4
i. I feel different from other people	1	2	3	4
j. The possibility of bowel accidents is always on my mind	1	2	3	4
k. I am afraid to have sex	1	2	3	4
l. I avoid traveling by plane or train	1	2	3	4
m. I avoid going out to eat	1	2	3	4
n. Whenever I go someplace new, I specifically locate where the bathrooms are	1	2	3	4

**Q 4:** During the past month, have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile?

1  Extremely So - To the point that I have just about given up

- 1  Extremely So - To the point that I have just about given up  
 2  Very Much So  
 3  Quite a Bit  
 4  Some - Enough to bother me  
 5  A Little Bit  
 6  Not At All

(GIF 32.5 KB)

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OPTIONS NOCENTER LS=110 PS=60;
TITLE 'SAS CODE TO SCORE FIQL';

LIBNAME MYDATA 'x:\my_data';

*** SAS CODE FOR SCORING THE FIQL ***;
*** DATA STEP CODE ***;

DATA FIQLBASE; SET MYDATA.FIQLIN;

PROC SORT DATA=FIQLBASE OUT=FIQLSORT; BY ID; *SUBJECT ID VARIABLE;

data recode; set fiqlsort;
RVQ1=.; RVQ1=((1+5)-Q1); *REVERSE CODE Q1;
RQ1=.; RQ1=RVQ1*.8; *CHANGE Q1 TO A 4 POINT RESPONSE SCALE;
IF (RQ1 GT 0) THEN DO; *DUE TO CONVERTING Q1 4 POINT SCALE;
IF (RQ1 LT 1) THEN RQ1=1; *IT CAN VALUES BELOW 1 AND ABOVE 4;
IF (RQ1 GT 4) THEN RQ1=4; *THIS CODE SET VALUES BELOW 1 TO 1 AND ABOVE 4 TO 4;
END;
Q1=RQ1;

RQ4=.; RQ4=Q4*.67; *CHANGE Q4 TO A 4 POINT RESPONSE SCALE;
IF (RQ4 GT 0) THEN DO; *DUE TO CONVERTING Q4 4 POINT SCALE;
IF (RQ4 LT 1) THEN RQ4=1; *IT CAN VALUES BELOW 1 AND ABOVE 4;
IF (RQ4 GT 4) THEN RQ4=4; *THIS CODE SET VALUES BELOW 1 TO 1 AND ABOVE 4 TO 4;
END;
Q4=RQ4;

MFIQL1=NMISS (Q2A, Q2B, Q2C, Q2D, Q2E, Q2G, Q2H, Q3B, Q3L, Q3M); *# OF ITEMS WITH MISSING VALUES SCALE1;
MFIQL2=NMISS (Q2F, Q2I, Q2J, Q2K, Q2M, Q3C, Q3H, Q3J, Q3N); *# OF ITEMS WITH MISSING VALUES SCALE2;
MFIQL3=NMISS (Q1, Q3D, Q3F, Q3G, Q3I, Q3K, Q4); *# OF ITEMS WITH MISSING VALUES SCALE3;
MFIQL4=NMISS (Q2L, Q3A, Q3E); *# OF ITEMS WITH MISSING VALUES SCALE4;

DROP RVQ1 RQ1 RQ4; *DROP TEMPORARY VARIABLES;
DATA STANFIQL; SET RECODE;

** REPLACE MISSING RESPONSES WITH MEAN VALUE;

PROC STANDARD DATA=STANFIQL REPLACE OUT=FIMissrp; VAR

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(GIF 56.5 KB)

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Q2A Q2B Q2C Q2D Q2E Q2G Q2H Q3B Q3L Q3M
Q2F Q2I Q2J Q2K Q2M Q3C Q3H Q3J Q3N
Q1 Q3D Q3F Q3G Q3I Q3K Q4
Q2L Q3A Q3E;
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RUN;
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DATA FIQLMISR; MERGE STANFIQL FIMISSRP; BY ID;
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IF (MFIQL1 GE 5) THEN FIQLS1=.; ELSE
  FIQLS1=MEAN(Q2A,Q2B,Q2C,Q2D,Q2E,Q2G,Q2H,Q3B,Q3L,Q3M); *DETERMINE SCORE FOR SCALE 1:
  *ALLOWS UP TO 4 ITEMS TO HAVE MISSING VALUES;
IF (MFIQL2 GE 5) THEN FIQLS2=.; ELSE
  FIQLS2=MEAN(Q2F,Q2I,Q2J,Q2K,Q2M,Q3C,Q3H,Q3J,Q3N); *DETERMINE SCORE FOR SCALE 2:
  *ALLOWS UP TO 4 ITEMS TO HAVE MISSING VALUES;
IF (MFIQL3 GE 3) THEN FIQLS3=.; ELSE
  FIQLS3=MEAN(Q1,Q3D,Q3F,Q3G,Q3I,Q3K,Q4); *DETERMINE SCORE FOR SCALE 3:
  *ALLOWS UP TO 2 ITEMS TO HAVE MISSING VALUES;
IF (MFIQL4 GE 1) THEN FIQLS4=.; ELSE
  FIQLS4=MEAN(Q2L,Q3A,Q3E); *DETERMINE SCORE FOR SCALE 3:
  *ALLOWS UP TO 1 ITEMS TO HAVE MISSING VALUES;
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LABEL
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FIQLS1='FIQL SCALE 1: LIFESTYLE'
FIQLS2='FIQL SCALE 2: COPING/BEHAVIOR'
FIQLS3='FIQL SCALE 3: DEPRESSION/SELF PERCEPTION'
FIQLS4='FIQL SCALE 4: EMBARRASSMENT';
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DATA FIQLSCORE; SET FIQLMISR;
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PROC MEANS DATA=FIQLSCORE N MIN MAX MEAN STD MAXDEC=2; VAR FIQLS1 FIQLS2 FIQLS3 FIQLS4; RUN;
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(GIF 39.4 KB)