

**TABLE E-1 Demographic Data for the Initial Validation Phase (N = 49)**

Parameter*	Mean	95% Confidence Interval	Std. Dev.	Range
Age (yr)	14	12.4-13.7	2.14	11-20
Height (cm)	158.7	157.5-162.4	7.65	146.7-172.1
Weight (kg)	49.9	45.6-54.2	10.56	36.3-75.3
Major Cobb angle (deg)	53.5	50.7-56.9	10.35	40-82
Trunk rotation angle (deg)	15.1	14-16.6	4.32	5-28

\*Height was only available for twenty-four patients; weight, for twenty-three; and trunk rotation angle, for forty-four.

**TABLE E-2 Mean BIDQ-S Scores and Major Cobb and Trunk Rotation Angles for the Discriminant Validity Testing Phase (Total N = 196)**

Parameter	Nonoperative Subgroup, N = 54*	Operative Subgroup, N = 44*	Control Group, N = 98*	P Value
BIDQ-S score†	1.45 ± 0.46	1.57 ± 0.52	1.06 ± 0.14	<0.005
Females	1.47 ± 0.46	1.61 ± 0.55	1.06 ± 0.13	<0.005
Males	1.36 ± 0.45	1.47 ± 0.45	1.07 ± 0.17	<0.005
Major Cobb angle‡ (deg)	23.2 ± 10.2	50.73 ± 8.23	—	<0.005
Females	25.8 ± 9.8	48.6 ± 7.0		<0.005
Males	14.3 ± 5.6	55.4 ± 9.9		<0.005
Thoracic trunk rotation angle§ (deg)	7.8 ± 2.9	12.1 ± 5.0	—	<0.005
Females	8.2 ± 1.0	11.8 ± 0.82		<0.005
Males	6.7 ± 1.6	13.1 ± 1.4		
Thoracolumbar trunk rotation angle# (deg)	8.6 ± 3.7	9.1 ± 5.4	—	0.62
Females	9.0 ± 3.8	10.3 ± 5.4		<0.005
Males	6.6 ± 2.7	4.5 ± 2.8		<0.005

\*The values are given as the mean and the standard deviation. †Significant differences between each scoliosis subgroup and the control group; no significant difference between the scoliosis subgroups (p = 0.195). No significant difference within any group according to sex (p = 0.203). ‡No significant difference within any group according to sex (p = 0.253). §No significant difference within any group according to sex (p = 0.935). #Significant difference within each group according to sex (p = 0.001).

**TABLE E-3 The BIDQ-S**

Kids and teenagers with scoliosis sometimes have concerns about their appearance, or how they look. This questionnaire asks about concerns you may have about how your back looks because you have scoliosis.

Please read each question carefully and circle the answer that best describes your thoughts and feelings about your back. Some questions ask you to write in your own answers. Please write your answers on the line that is provided. There are no right or wrong answers.

1A. Are you worried about the appearance of your back shape? (Circle the best answer)

1. Not at all worried
2. Somewhat worried
3. Moderately worried
4. Very worried
5. Extremely worried

1B. What are these concerns? (Circle all that apply)

1. My shoulders are uneven (one is higher or lower than the other)
2. My shoulder blade sticks out
3. My chest is asymmetric from the front (one side looks higher or lower than the other side)
4. My hips are asymmetric (one hip is higher or lower than the other)
5. My rib bump

2A. If you are at least somewhat concerned or worried, do these concerns/worries preoccupy you? That is, you think about them a lot and they're hard to stop thinking about? (Circle the best answer)

1. Not at all preoccupied (I do not think about them)
2. Somewhat preoccupied (I think about them from time to time)
3. Moderately preoccupied (I think about them a moderate amount)
4. Very preoccupied (I think about them a lot)
5. Extremely preoccupied (I think about them constantly)

2B. How do your concerns about the way your back looks affect your life? For example, some kids say that they avoid swimming because they are embarrassed to show their back.

3. Has the way your back looks caused you to feel upset? How much? (Circle the best answer)

1. Not upset at all
2. Mild (a little bit upset)
3. Moderate (Somewhat upset)
4. Severe, and very disturbing (very upset)
5. Extreme, and disabling (extremely upset)

4. Have your worries about how your back looks caused you any problems at school, at your job, or with your friends and family? How much? (Circle the best answer)

1. No problems
2. A few problems, but overall I can do what I need to do, and my performance is not affected
3. Several problems, but I can cope with them; problems are still manageable
4. A lot of problems that limit what I can do; problems cause a lot of limitations
5. Extreme problems that keep me from doing almost everything I want or need to do

5A. Has your back shape caused problems with your friends, family members, or dating? How much?

1. Never
2. Occasionally
3. Sometimes
4. A lot
5. All the time

5B. If so, how?

*continued*

**TABLE E-3 (continued)**

6A. Has your back shape caused problems with your schoolwork, your job, or your ability to do other things that are important to you (e.g., play sports, be social with your friends)? How much? (Circle the best answer)

1. Never
2. Occasionally
3. Sometimes
4. A lot
5. All the time

6B. If so, how?

7A. Do you ever avoid things because of your back shape? How often? (Circle the best answer)

1. Never
2. Occasionally
3. Sometimes
4. A lot
5. All the time

7B. If so, how?

**TABLE E-4 Transforming the BIDQ to the BIDQ-S**

BIDQ Question	BIDQ-S Question	Modification Procedure
1A. Are you concerned about the appearance of some part(s) of your body, which you consider especially unattractive? (Circle the best answer)	1A. Are you worried about the appearance of your back shape? (Circle the best answer)	The BIDQ-S is concerned only with back shape, so it is specifically identified as the body part of concern
1B. What are these concerns? What specifically bothers you about the appearance of these body parts?	1B. What are these concerns? (Circle all that apply) 1. My shoulders are uneven (one is higher or lower than the other) 2. My shoulder blade sticks out 3. My chest is asymmetric from the front (one side looks higher or lower than the other side) 4. My hips are asymmetric (one hip is higher or lower than the other) 5. My rib bump	Repeat of question; concerns are listed to help patient quantify what “bothers” them
2A. If you are at least somewhat concerned, do these concerns preoccupy you? That is, do you think about them a lot and they’re hard to stop thinking about? (Circle best answer)	2A. If you are at least somewhat concerned or worried, do these concerns/worries preoccupy you? That is, you think about them a lot and they’re hard to stop thinking about? (Circle the best answer)	Repeat of question
2B. What effect has your preoccupation with your appearance had on your life? (Free response)	2B. How do your concerns about the way your back looks affect your life? For example, some kids say that they avoid swimming because they are embarrassed to show their back. (Free response)	Rewording of question to focus patient’s attention on their back shape when answering, including a prompt to help them identify effects scoliosis has on one’s life
3. Has your physical “defect” often caused you a lot of distress, torment or pain? How much? (Circle the best answer)	3. Has the way your back looks caused you to feel upset? How much? (Circle the best answer)	Rewording of question to focus more on emotional stress (“upset”) versus “pain,” which can have dual meaning in the scoliosis population
4. Has your physical “defect” caused you impairment in social, occupational or other important areas of functioning? How much? (Circle the best answer)	4. Have your worries about how your back looks caused you any problems at school, at your job, or with your friends and family? How much? (Circle the best answer)	Rewording of question to apply more to adolescent lifestyles
5A. Has your physical “defect” significantly interfered with your social life? How much? (Circle the best answer)	5A. Has your back shape caused problems with your friends, family members, or dating? How much?	Rewording of question to apply more to adolescent lifestyles
5B. If so, how? (Free response)	5B. If so, how? (Free response)	
6A. Has your physical “defect” significantly interfered with your schoolwork, your job, or your ability to function in your role? How much? (Circle the best answer)	6A. Has your back shape caused problems with your schoolwork, your job, or your ability to do other things that are important to you (e.g., play sports, be social with your friends)? How much? (Circle the best answer)	Rewording of question to apply more to adolescent lifestyles
6B. If so, how? (Free response)	6B. If so, how? (Free response)	
7A. Do you ever avoid things because of your physical “defect”? How often? (Circle the best answer)	7A. Do you ever avoid things because of your back shape? How often? (Circle the best answer)	Rewording of question to focus patient’s attention on their back shape when answering
7B. If so, what do you avoid? (Free response)	7B. If so, how? (Free response)	

**TABLE E-5 Demographic Questionnaire**

Household status (please check the appropriate box)	
Single parent household	Dual parent household
Parent/parents' combined income range (please check the appropriate box)	
\$0-\$15,000	\$75,000-\$125,000
\$15,000-\$30,000	\$125,000-\$200,000
\$30,000-\$50,000	\$200,000 +
\$50,000-\$75,000	
Parental education (please check the highest level completed by each parent)	
Mother	Father
High school degree (GED) or equivalent	High school degree (GED) or equivalent
Technical school/vocational degree	Technical school/vocational degree
Bachelor degree	Bachelor degree
Master degree	Master degree
Doctorate (MD, JD, PhD)	Doctorate (MD, JD, PhD)
Racial category	Definition of category
Asian	A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent including: China, Japan, Korea, Malaysia, Pakistan, Thailand, Vietnam, Cambodia, India, and the Philippine Islands.
Please Specify _____	A person having origins in any of the black racial groups of Africa.
Black or African American	
Please Specify _____	
Hispanic or Latino	A person of Cuban, Mexican, Puerto Rican, South/Central American, and other Spanish culture or origin.
Please Specify _____	
Native American or Alaska Native	A person having origins in any of the original peoples of North, Central, or South America, and who maintain tribal affiliations or community attachment.
Please Specify _____	
Native Hawaiian or Pacific Islander	A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.
Please Specify _____	
White or Caucasian	A person having origins in any of the original peoples of Europe, the Middle East, or North Africa.
Please Specify _____	
Other (Please Specify) _____	

**TABLE E-6 Responses and Characteristics of Patients Who Answered the BIDQ-S Free Text Response Questions\***

Age (yr)	Sex	Curve Type and Magnitude	Response
15	F	PT 38, T 71, L 26	I always wear a shirt over my swimsuit. I try to sit straight so my curve is less noticeable. I usually wear my hair long and flip over my back to cover it. I try to keep my back rigid when bending over so the curve is less noticeable
14	F	PT 28, MT 53, TL 33	I'm self-conscious, I've been made fun of. . . I hide. . . [my back shape] in pictures, I don't like when people touch it or say anything about it
14	F	PT 32, MT 54, L 30	I get self-conscious about how my shoulder blade sticks out
16	M	PT 49, MT 76, TL 68	I avoid hanging out. . . [and] can't play with my friends or do the stuff that boys do
19	F	PT 39, TL 46, L 11	I'm self-conscious in clothes that show my rib hump
18	M	PT 25, TL 50, L 26	It embarrasses me to take off my shirt. . . I am looked at as a freak and as an unattractive person
12	M	PT 35, MT 24, TL 12	I avoid playing sports and I wear big shirts because I don't want people to see my brace

\*PT = proximal thoracic, T = thoracic, L = lumbar, MT = main thoracic, and TL = thoracolumbar.

**TABLE E-7 Correlation of BIDQ-S with Demographic Parameters**

Demographic Parameter	R Value	P Value
Control group		
Age	0.139	0.174
BMI	0.087	0.419
Clinical group		
Age	0.143	0.160
BMI	-0.038	0.721
Major Cobb angle	0.112	0.271
Primary trunk rotation angle	0.179	0.161

**TABLE E-8 Effect of Annual Household Income on Mean BIDQ-S Score**

Annual Household Income (USD)	Control Group, N = 98		Clinical Group, N = 98	
	N	Mean BIDQ-S Score*	N	Mean BIDQ-S Score*
0-15,000	13	1.10 ± 0.19	5	1.43 ± 0.33
15,000-30,000	7	1.02 ± 0.05†	6	1.31 ± 0.42
30,000-50,000	6	1.02 ± 0.06‡	8	1.89 ± 0.90
50,000-75,000	6	1.00 ± 0.00§	13	1.38 ± 0.32
75,000-125,000	13	1.14 ± 0.25	15	1.45 ± 0.49
125,000-200,000	3	1.33 ± 0.17	10	1.67 ± 0.53
>200,000	6	1.07 ± 0.12	10	1.28 ± 0.35
No response	44	1.03 ± 0.06	31	1.54 ± 0.43

\*The values are given as the mean and the standard deviation. †P = 0.018 compared with the >\$200,000 category. ‡P = 0.027 compared with the >\$200,000 category. §P = 0.012 compared with the >\$200,000 category.