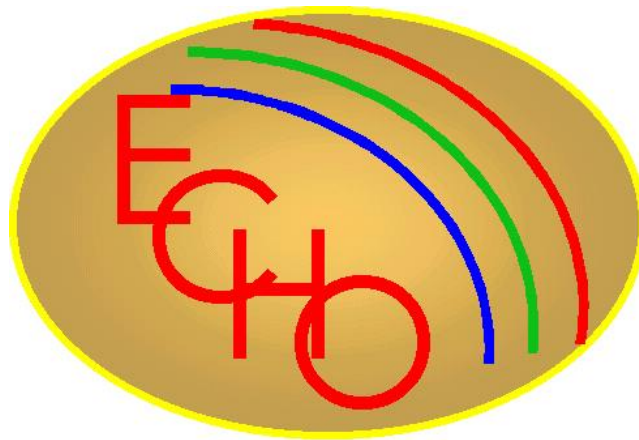


ECHO

**Expected Consequences of Hearing Aid Ownership
questionnaire**



Manual for scoring and administering the ECHO questionnaire

Software Version 1.0 for Windows

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The ECHO Program

The ECHO (Expected Consequences of Hearing Aid Ownership) questionnaire is a 15-item self-assessment instrument for evaluating expectations about hearing aids. It was developed as a companion instrument to the SADL questionnaire. As with the SADL, it produces a global score and four different subscale scores: positive effect, service and cost, negative features, and personal image. These scale scores can then be compared with the range of scores representing realistic expectations for hearing aid use.

The ECHO software program provides a way to: administer the questionnaire using a computer; score completed paper-and-pencil questionnaires; and examine the results using a graphical output. The ECHO could be used to examine possibly unrealistic expectations a potential hearing aid wearer may have. Clinicians may then use this information to direct counseling to address expectations before the hearing aid is issued. This may prevent unnecessary disappointment with the experience of hearing aid use.

SYSTEM REQUIREMENTS AND INSTALLATION

The ECHO program is a 32-bit Microsoft Windows®[1] application that can run on most systems with Microsoft Windows® 95 or later. ECHO for Windows needs at least 1 MB of hard disk space for the program and associated files. A laser printer is recommended for the best quality printouts of ECHO data in graphical form but is not essential. A color printer will produce color graphics as on the screen graphs.

To install the software, run SETUP.EXE from the ECHO directory of the installation CD.

RUNNING THE PROGRAM

The ECHO program opens displaying a blank Patient Information screen. At the top of the screen is the Main Menu bar. “File” and “Help” are pull-down menus of program options. To select a menu item either click on it with the mouse or press the Alt key and the underlined letter of the menu selection simultaneously. For example, <Alt+F> selects the “File” menu, while <Alt+A> selects “Save as...” in the “File” menu. To move about the menu levels, you can use the mouse or the cursor keys.

File contains the selections:

1. New
2. Load
3. Save
4. Save As
5. Exit (Alt + X)

Help contains the selections:

1. Contents
2. Using Help
3. About

Below the Main Menu bar is an icon toolbar for quick access to program functions. These include Create a new file, Open an existing file, Save the current file, Patient information, Dispenser-entered responses and Hearing Aid Info, Patient-entered responses, Display scores graphically, and Print data report. If the cursor pauses on one of these icons, a message will appear identifying the function of the particular icon. The Menu bar and the Toolbar are always available no matter what screen is displayed.

On any data entry screen, moving around the various fields is done with the mouse or with the Tab key. Moving within a field is done with the mouse or the cursor keys. Pressing a button is done by clicking on it with the mouse or pressing the Alt key and the underlined letter on the button. Throughout the remainder of these instructions, the Tab key will be referred to by <Tab>, the Enter key by <Enter>, etc. The combination of <Alt> plus the underlined letter of a command will be referred to by <Alt+“underlined letter”>.

FILE: From this menu, the user can load an existing file, start a new file, save files, and exit and close the program

New: When the program is first opened, it is ready to take edits for a new file. This menu option is primarily used when you are finished with an already loaded file and you wish to create a new file.

Load: Selecting this option opens a window to allow the user to load a previously stored data file. Use the window to access the appropriate subdirectory (folder) and select a file to open.

Save: This option saves the current file and any edits without exiting the program. When the user selects the “Save” option of the program, a data entry window opens where the filename must be typed in. The filename is not read from the identification field on the Patient Information screen.

Data files are automatically given an .eco extension. Only one set of data can be stored in a file. Therefore, if there is more than one administration of the ECHO for the same patient, the filenames must be different.

Save as: This option is used to save a copy of a data file under a different name. There will then be two copies of the data file under two different filenames. Type in the new filename and then select “OK”.

Exit: Select this or type <Alt + X> to exit the ECHO program.

PATIENT INFORMATION

To move around the Patient Information screen, use the <Tab> key or the mouse. <Tab> moves from field to field and <Shift + Tab> moves backwards through the edit fields. There are edit fields available for the patient's name, an identification number or name, the patient's date of birth (DOB), the clinician's name, the test date, and comments. A field for any expected third party payment of the hearing aid is provided, along with three fields for demographic information about the patient's hearing aid use.

Patient Information screen

ECHO v1.0

File Help

Patient Information

Last Name: First Name: MI: ID#:

Birth Date: Clinician: Test Date:

Expected Third Party Pay for HA (check one)

None Some All

Comments: (max 255 characters)

Total H. Aid Experience

None

Less than 6 weeks

6 weeks to 11 months

1 to 10 years

Over 10 years

Daily Hearing Aid Use

None

Less than 1 hr per day

1 to 4 hours per day

4 to 8 hours per day

8 to 16 hours per day

Hearing Difficulty Unaided

None

Mild

Moderate

Mod. Severe

Severe

Modified

DISPENSER-ENTERED RESPONSES

This mode would be used by the dispenser to record a patient's responses from a paper & pencil version of the ECHO questionnaire. Use the mouse to select responses to the items.

Check the box for item #11 if the patient hears well on the phone without a hearing aid.

Dispenser-Entered Responses screen

The screenshot shows a software window titled "ECHO v1.0" with a menu bar containing "File" and "Help". Below the menu bar is a toolbar with icons for file operations. The main area has a light green background and displays the following information:

Patient: Doe, Jane A

1. Will help with most people...	A	B	C	D	<input type="checkbox"/> E	F	G
2. Will be frustrated...	A	B	<input type="checkbox"/> C	D	E	F	G
3. Will be in best interests...	A	B	C	<input type="checkbox"/> D	E	F	G
4. Will notice loss more...	A	B	C	D	E	<input type="checkbox"/> F	G
5. Will reduce asking to repeat...	A	B	C	D	<input type="checkbox"/> E	F	G
6. Will be worth the trouble...	A	B	C	D	E	F	<input type="checkbox"/> G
7. Will be bothered by feedback...	A	B	<input type="checkbox"/> C	D	E	F	G
8. Will be content with appearance...	A	B	C	<input type="checkbox"/> D	E	F	G
9. Will improve self confidence...	A	B	C	<input type="checkbox"/> D	E	F	G
10. Will sound natural...	A	B	C	D	<input type="checkbox"/> E	F	G
11. ** Will help on phone... <input checked="" type="checkbox"/>	A	B	C	D	E	F	G
12. Dispenser will be competent...	A	B	C	D	E	F	<input type="checkbox"/> G
13. I will seem less capable...	A	B	<input type="checkbox"/> C	D	E	F	G
14. Cost will be reasonable...	A	B	C	D	<input type="checkbox"/> E	F	G
15. Will be dependable...	A	B	C	D	E	<input type="checkbox"/> F	G

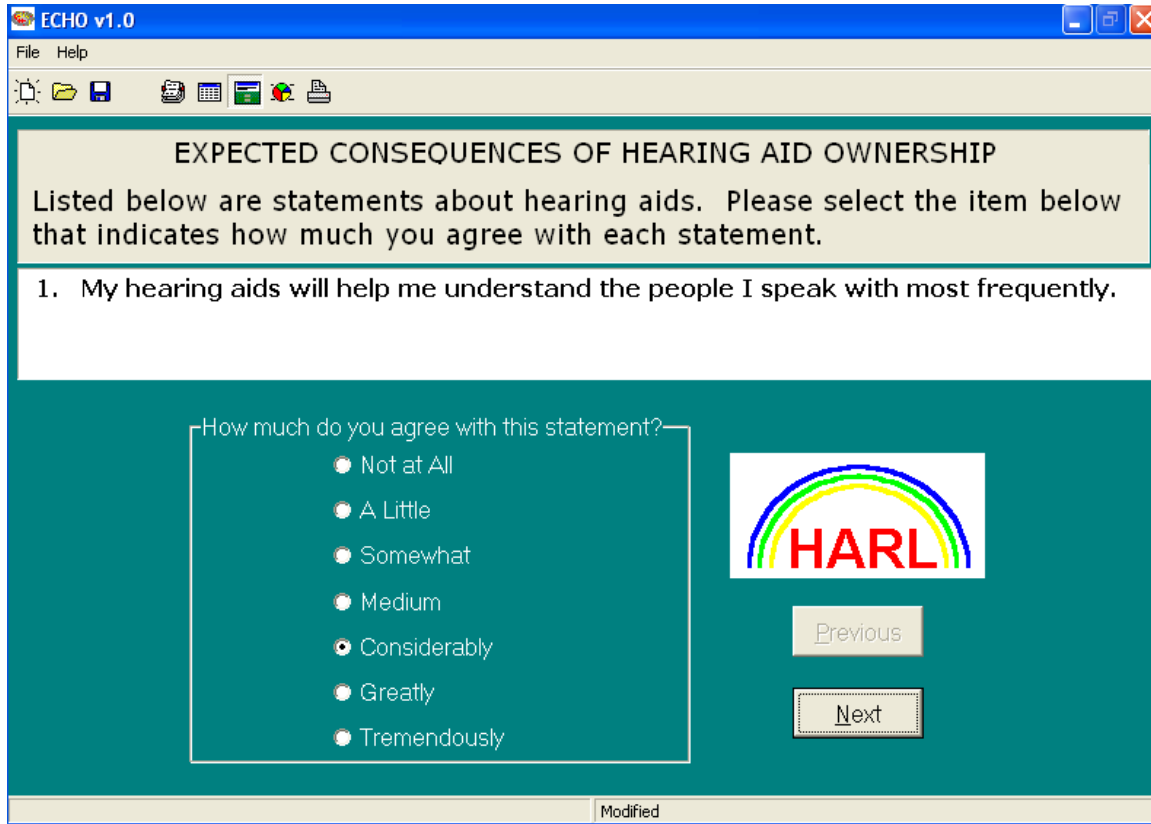
** Not applicable if patient hears well on telephone w/out aid

Modified

PATIENT-ENTERED RESPONSES

This function can be used in place of a paper copy of the survey. After accessing the response screen, pressing <Ctrl+Alt+L> locks the program, except for the Exit and Minimize buttons at the top right corner of the program window. When in this mode, the patient can only interact with the questionnaire items and cannot access other program features. Again pressing <Ctrl+Alt+L> toggles the locking feature off.

Patient-Entered Responses screen



The screenshot shows a software window titled "ECHO v1.0" with a menu bar containing "File" and "Help". Below the menu bar is a toolbar with icons for file operations. The main content area has a light green background and contains the following text:

EXPECTED CONSEQUENCES OF HEARING AID OWNERSHIP

Listed below are statements about hearing aids. Please select the item below that indicates how much you agree with each statement.

1. My hearing aids will help me understand the people I speak with most frequently.

How much do you agree with this statement?

- Not at All
- A Little
- Somewhat
- Medium
- Considerably
- Greatly
- Tremendously

To the right of the radio buttons is the HARL logo, which features a rainbow arching over the letters "HARL" in red. Below the logo are two buttons: "Previous" and "Next". The "Next" button is highlighted with a dashed border, indicating it is the active button. At the bottom of the window, there is a status bar with the word "Modified" on the right side.

Each question is on a separate screen. Use the “Previous” and “Next” buttons to move back and forth among the items. However, the patient cannot move ahead to the next screen (question) unless the current item has a response selected.

GRAPH SCREEN

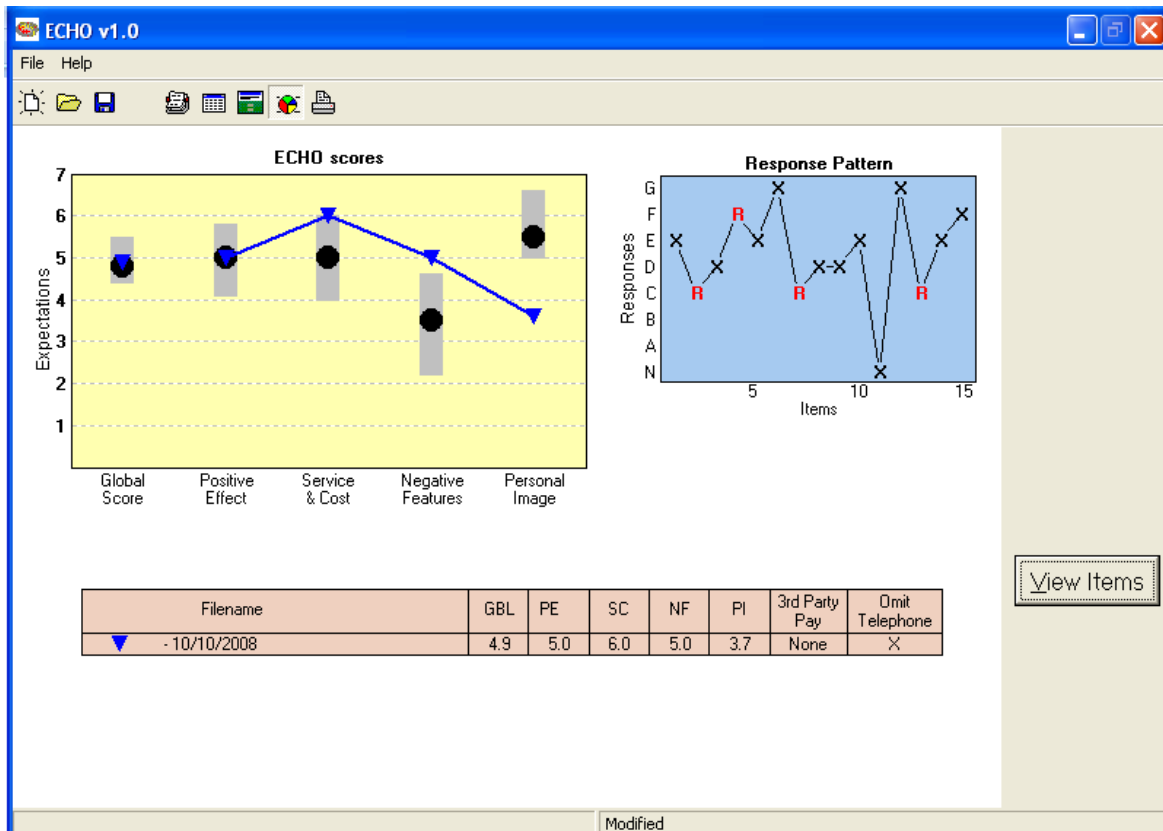
Test scores:

On the upper left of the screen is a graph showing the patient's scores for each subscale (the triangle symbols). Higher scores indicate greater expected satisfaction with amplification. The graph also displays the mean scores for a normative group of hearing aid users (the black circles) and a gray bar representing their range of scores from the 20th to the 80th percentiles.

Scoring exceptions:

1. If you have indicated on the Patient Information screen that the cost of the hearing aid will be partly or completely paid by a third party, the item about cost (#14) is not scored. Norms for Global score and the Service & Cost subscale are different when the cost item (#14) has been omitted.
2. If you have noted in item #11 that the patient hears well on the telephone without a hearing aid, item #11 will not be scored in the Negative Features subscale.

The screen graphs



At the bottom of the screen is a table of the patient's scores and the date of test administration. Exceptions in scoring items #14 or #11 are noted here.

The graph of the response pattern:

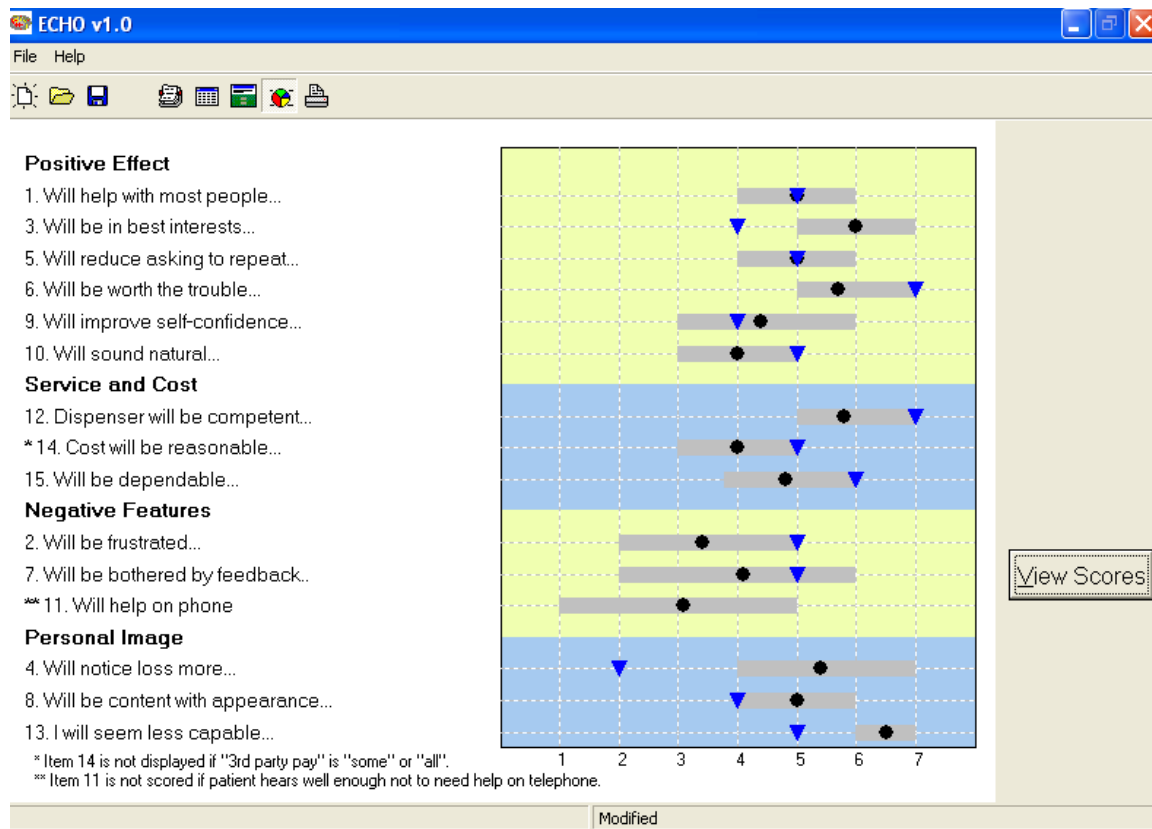
The upper right of the screen displays a graph of the patient's response pattern for the 15 items. Responses should appear somewhat random. This graph should be used to check for any pattern to the answers. The R's indicate items that are reversed for scoring.

Missing data:

Because only a few items contribute to each subscale, any missing responses can have a substantial impact on the patient's score for that subscale. If any item on the questionnaire was not answered, the subscale which includes this missing data should be viewed with caution by the dispenser when compared with the normative data. For this reason, the symbol for a subscale score with missing data will be red.

The "View Items" button:

The "View items" button brings up a screen showing the items grouped according to subscales and some words from the text of its individual items. The patient's response for each item is shown compared with the normative group's mean score and range of scores from the 20th to the 80th percentiles.



The "view items" program feature could be used to investigate a subscale of concern or of particular interest to the clinician. For instance, if a patient's score on a subscale varied

significantly from the norm, the clinician could view the responses to the individual items in that subscale to see if a single item was causing this result. Then, it could be determined if the patient needed some attention in this area to assist with expectation management.

The “View scores” button returns the user to the original Graph screen.

PRINT

Selecting this icon allows the user to set-up the printer as with other Windows programs. The printout includes the patient information entered, the archived information about the hearing aid fitting, a table of the patient’s subscale scores, the graphs of the subscale scores and response pattern as on the Graph screen, and the list of items and graph of scores as on the “View items” screen. The printout of the graphs will also show the currently imported data. This information will print in color if a color inkjet or laser printer is used.



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