

Goal Attainment Scaling in Health Coaching

- What is Goal Attainment Scale (GAS)
- History of Health Coaching Program
- Research Discussion
- What is Goal Attainment Scaling
- Development
- Final Reflections



Current Health Coaching Program

- Be a Better Bearcat Employee Wellness
- Why a Health Coaching Program was developed
- Implementation of our program
- How did we assess goals?



Research Discussion

- Background
- Methods
- Results
- Discussion



What is Goal Attainment Scaling



Goal Attainment Scaling

- History of a GAS
 - First proposed by Kiresuk and Sherman (1968)
 - Program evaluation in mental health
 - Personalized, multi-variable, description that is scaled
 - Used for setting client goals and measuring their attainment
 - Can be applied to programs and individuals across a variety of services



Goal Attainment Scaling

- Getting a visual

Table 2. Sample goal statements and GAS.

Goal attainment level	Score	Goal 1	Goal 2	Goal 3	Goal 4
		Oral health	Stress reduction	Physical activity	Healthy diet
		I will brush my teeth and gums three times a day for myself.	I will find some time and energy for recreational activities once per week.	I will establish a regular, routine fitness program, three times per week.	I will increase intake of fruits and vegetables by one serving per day.
Much better than expected	+2	I brushed my teeth and gums more than four times a day for myself.	I reserved some time and energy for recreational activities several times each week.	I exercised more than four to five times per week.	I increased intake of fruits and vegetables to more than two servings per day.
Somewhat better than expected	+1	I brushed my teeth and gums four times a day for myself.	I reserved some time and energy for recreational activities more than once per week.	I exercised four to five times per week.	I increased intake of fruits and vegetables by two servings per day.
The expected level of attainment	0	I brushed my teeth and gums three times a day for myself.	I reserved some time and energy for recreational activities once per week.	I established a regular, routine fitness program, three times per week.	I increased intake of fruits and vegetables by one serving per day.
Somewhat less than expected	-1	Brushing less than three times a day for myself.	File change in time and energy resources related to recreation.	Exercise less than three times per week.	No change in fruit and vegetable intake.
Much less than expected	-2	Brushing less than two times a day for myself.	Less time and energy resources reserved for recreation each week.	Very little or no exercise.	Decreased fruit and vegetable intake.

Abbreviation: GAS, Goal Attainment Scaling.

Settings

- Geriatric Care
- Proven to have short and long term effectiveness in helping patients achieve individualized outcome measures
- Rehabilitation
 - The use of statistical analysis seems to be more valid in rehabilitation services than in mental health settings
- Health Coaching & Community Wellness
- Motivational Interviewing
- Public Health
- Nursing
- Schools
- Mental Health



GAS

- Specifying
- Scaling and Weighing
- Scoring



Specifying

- Specifying
 - Most significant behaviors or areas that need clinical intervention/improvement
- Interviewing
- Observing
- Recording
- Determining strengths and deficits



Specifying Goals

- Should incorporate problem areas
- Should be developed with the client or team via interviewing or observation
 - Specific
 - Measureable
 - Attainable
 - Realistic
 - Timely or time bound
- The client/patient usually determines the domains of goals
- Therapist/team determines level of achievement

Scaling

- Scaling
 - 5 potential levels of Scaling for your Goal(s)
 - 1 to 5 goals
 - Numerical Value for each relevant behavior
 - +2, +1, 0, -1, -2
 - Descriptors for each relevant behavior
 - Much less than
 - Moderately Less than
 - Expected Tx Resulted
 - Moderately More than
 - Much more than
- Each level is associated with a behavioral description



Title

	Physical Activity wt.=4	Anxiety wt.=5	Leisure Interest wt.=3	Stress Management wt.=5	Nutrition Planning wt.=2
Much Less than Expected (-2)	Walks less than 15 minutes	Descriptions go here			
Moderately Less than Expected ... (-1)	Walks less than 20 minutes				
Expected Outcome/Tx (0)	Walks for 30 minutes daily				
Moderately More Than Expected ... (+1)	Walks 40 minutes daily				
Much More Than Expected ... (+2)	Walks more than 40 minutes daily				



Weighting

Weights can be given (5 highest to 1 lowest) to each "problem area"

- The higher the number the more significant
- Goals can have the same weight

This is then used in scoring and data analysis



Weighting Example

	Physical Activity wt. =4	Anxiety wt. =5	Leisure Interest wt. =3	Stress Management wt. =5	Nutrition Planning wt. =2
Much Less than Expected (-2)	Walks less than 15 minutes	Descriptions go here			
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Scoring

- Scoring the outcome
 - Weight assigned to each scaled behavior and the level of outcome attained for each scale
 - Multiply weight by the initial level and add totals
 - Do this again for follow up totals
 - Example:

	Scale Outcome +	Scale Outcome +	Scale Outcome +	Scale Outcome +	Scale Outcome +	Scale Outcome +
Socialization	4x-1 = -4	Initiates and carries on a conversation	Does not initiate or carry on conversation	Enrolled and attends community college risk courses	Verbally expresses anger, disagreement and diversity to individual or group	Spaced job
Anxiety	5x-1 = -5	Answers direct questions	Takes priority off T.A. group	Has hobby and spends 1 hour a day on it	Uses punching bag	Located job and housing
Leisure Interest	3x0 = 0	Initiates a conversation	Takes priority off T.A. group	Has hobby and spends at least 1 day on it	Clicks on links such as other objects	Completes discharge planning group
Anger	5x-1 = -5	Initiates and carries on a conversation	Takes priority off T.A. group	Has hobby and spends 1 hour a day on it	Clicks on links such as other objects	Completes discharge planning group
Discharge planning	2x0 = 0	Initiates and carries on a conversation	Takes priority off T.A. group	Has hobby and spends 1 hour a day on it	Clicks on links such as other objects	Completes discharge planning group
Total points for initial visit	-14					

Truchsess W. A. (1984) A personalized approach to goal planning and evaluation in clinical settings. Therapeutic Recreation Journal 38(2):25-31

Goals → → → Outcomes	Socialization wt.=4	Anxiety wt.=5	Leisure Interest wt.=3	Anger wt.=5	Discharge Planning wt.=2
Much Less than Expected (-2)	Remains mute during group	Takes jewelry off 15 times in T.R.	Expresses no interest in hobbies	Hits group member	Refuses to talk about discharge
Moderately Less than Expected (-1)	Answers direct questions	Takes jewelry off 7 times in T.R. group	Has hobby but does not talk about it spontaneously	Curses at group member	Expresses fear of being independent
Expected Outcome/Tx (0)	Initiates a conversation	Takes jewelry off 5 times in T.R. group	Has hobby and spends 30 minutes a day on it	Kicks or hits walls or other objects	Completes discharge planning group
Moderately More Than Expected (+1)	Initiates and carries on a conversation	Takes jewelry off 3 times in T.R. group	Has a hobby and spends 1 hour a day on it	Uses punching bag	Located job and housing
Much More Than Expected (+2)	Organizes and leads group activities for week	Does not take jewelry off in T.R. group	Enrolled and attends community college skill courses	Verbally expresses anger appropriately and directly to individual or group	Started job

T-score Conversion

Sets of GAS scores for individual clients can be combined using the following standard T-score conversion formula:

$$T_{GAS} = 50 + \frac{10 \sum W_i X_i}{\sqrt{(1-r) \sum W_i^2 + r(\sum W_i)^2}}$$

where

- X_i = score on the i^{th} goal attainment scale
- W_i = relative weight for the i^{th} goal attainment scale
- r = weighted average intercorrelation of the scales
- n = number of GAS scales

When all relative weights are equal, this formula can be simplified as follows:

$$T_{GAS} = 50 + \frac{10 \sum X_i}{\sqrt{(1-r)n + rn^2}}$$

Scoring

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Reliability

- Depends on the objectivity with the described outcomes.
- When possible involve more than 1 person in the development of the GAS
- Have been reported excellent inter-rater reliability with rehabilitation applications vs mental health applications



Why do GAS?

- Individual goals
 - Client specific/client feedback
- Program Goals
 - Categorizes identified by the team such as



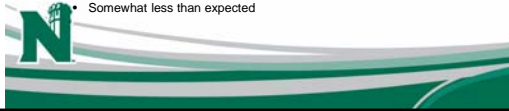
Goal Attainment Scaling

- How is it used for individual goals?
 - Participants identify 3 to 5 areas of change
 - (Decreasing anxiety, learning to swim, learning how to ride a tricycle)
 - Predictor of expectations of achievement in a certain amount of time
 - The prediction is recorded as "Expected" level of Achievement on the GAS form
 - More than expected
 - Much More than expected
 - Much less than expected
 - Somewhat less than expected
 - The client and the therapist can determine the scoring of this together in a meeting OR it can be observable



Goal Attainment Scaling

- How is it used for program goals?
 - Team/committee/group identify 3 to 5 areas of change
 - (Behavior, communication, socialization, self-efficacy, activity or skill level)
 - Predicted expectations of achievement in a certain amount of time
 - The prediction is recorded as "Expected" level of Achievement on the GAS form
 - More than expected
 - Much More than expected
 - Much less than expected
 - Somewhat less than expected
 - In this situation, the client has less involvement because it is done with a group of people (groups of youth at a recreational camp for example)



How specific do we make the expected outcome?

- Express the desired outcome in objective, behavioral terms
 - Goal: Physical Activity
 - +2: completes cardiovascular exercise more than five times per week
 - +1: completes cardiovascular exercise four to five times per week
 - 0: complete cardiovascular exercise three times per week
 - -1: completes cardiovascular exercise less than three times per week
 - -2: very little to no cardiovascular exercise is completed



Examples

- Several Modifications over time
 - Be consistent



Examples

Level of attainment	Goal of an 82 year old woman who met four frailty criteria	Goal of a 74 year old man who met three frailty criteria
Much better than expected	Able to collect mail from mailbox independently and able to walk three blocks to the post office.	Able to travel to the shopping centre independently on public transport.
Somewhat better than expected	Able to collect mail from the mailbox independently, on fine days and on rainy days.	Able to travel to the shopping centre on public transport in the presence of one other person.*
Program goal (expected performance at end of intervention)	Able to collect mail from the mailbox independently, on fine days.*	Able to travel to the shopping centre on bus provided by aged care facility. No assistance required.
Somewhat less than expected (no change in baseline performance)	Able to collect mail from the mailbox with assistance, on fine days.*	Able to travel to the shopping centre on bus provided by aged care facility with physical assistance of one person.
Much less than expected	Unable to collect mail from the mailbox.	Requires private transport and assistance to travel to shopping centre.

*12 month score

Example: Grading Rubric

FIGURE 1
GOAL ATTAINMENT FOLLOW-UP GUIDE
HEALTH ASSESSMENT CLASS

Scale Attainment Levels	SCALE HEADINGS AND SCALE WEIGHTS			
	SCALE 1: Respiratory Skills (w ₁ = 25)	SCALE 2: Cardiovascular Skills (w ₂ = 25)	SCALE 3: Neurological Skills (w ₃ = 25)	SCALE 4: Abdominal Skills (w ₄ = 25)
A. meet affordable treatment outcome thought likely (1-2)	The participant will perform no respiratory assessments on patients.	The participant will perform no C.V. assessments on patients.	The participant performs no neurological assessments on patients.	The participant performs no abdominal assessments on patients.
B. less than expected outcome with education (1-3)	On 50% of patients contacted the participant will perform respiratory assessment.	On 50% of patients contacted the participant performs C.V. assessment.	On 50% of patients contacted the participant performs neurological assessment.	On 50% of patients contacted the participant performs an abdominal assessment.
C. expected level of outcome with education (3)	The participant will perform a respiratory assessment on each patient contacted.	The participant performs a C.V. assessment on each patient contacted.	The participant performs a neurological assessment on each patient contacted.	The participant performs an abdominal assessment on each patient contacted.
D. more than expected outcome with education (4-5)	The participant will distinguish normal breath sounds from adventitious sounds.	The participant will distinguish S ₁ & S ₂ sounds from extra sounds and murmurs.	The participant will distinguish normal reflexes from abnormal reflexes, coordination, sensation and mental state from abnormal.	The participant will distinguish normal size of abdominal organs from abnormal.
E. best anticipated outcome with education (4-5)	The participant will identify abnormal breath sounds and make an appropriate nursing intervention including patient education or refer to other health team members.	The participant will identify pathological heart sounds and take appropriate nursing action and/or refer.	The participant will take appropriate action on abnormal neuro signs including nursing intervention and/or refer.	The participant will distinguish normal from abnormal abdominal organ size and institute appropriate intervention.

Example

Johnny	play piano	style hair
-2 Much less than expected level of outcome	R hand moves from lap to keyboard	hold the dryer in R hand
-1 Somewhat less than expected level of outcome	R hand stays on keyboard while L hand plays	lift the dryer R hand to head level
0 Expected level of outcome	R hand plays a repeated note	hold the dryer with his R hand, style with brush L hand
+1 Somewhat more than expected level of outcome	R hand plays a chord	hold the dryer with his L hand, style front and R with R fingers
+2 Much more than expected level of outcome	R hand plays a simple melody	hold the dryer with his L hand, style all hair with R fingers

Examples

Level of Expected Outcome	Goal 1
Much more than expected outcome	Develop a new treatment and technique to track outcomes of treatment to be used at FW site.
More than expected outcome	Identify and implement a treatment technique from evidence new to this practice area with no assist from FW educator.
Most likely outcome	Be able to explain reasons for specific activities being assigned to child with no assist from FW educator.
Less than expected outcome	Be able to explain reasons for specific activities being assigned to child with 1%-50% assist from FW educator.
Much less than expected	Be able to explain reasons for specific activities being assigned to child with 51%-100% assist from FW educator.



Examples

- +2 Client consistently attends gym exercise classes 5-6 days a week.
- +1 Client attends gym exercise classes 2-4 days a week.
- 0 In addition to walking 2 times a week for 20 minutes, client attends 1 gym exercise class per week (expected outcome).
- 1 Client walks 1-2 times per week for 20 minutes (behavioral baseline or current status).
- 2 Client does not engage in any exercise during the week.



Examples

Table 2 Sample goal statements and GAS

Goal attainment level	Score	Goal areas			
		Goal 1	Goal 2	Goal 3	Goal 4
		Oral health	Stress reduction	Physical activity	Healthy diet
		I will brush my teeth and gums three times a day for myself.	I will find some time and energy for recreational activities once per week.	I will establish a regular, routine fitness program three times per week.	I will increase intake of fruits and vegetables by one serving per day.
Much better than expected	+2	I brushed my teeth and gums more than four times a day for myself.	I reserved some time and energy for recreational activities several times each week.	I exercised more than four to five times per week.	I increased intake of fruits and vegetables to more than two servings per day.
Somewhat better than expected	+1	I brushed my teeth and gums four times a day for myself.	I reserved some time and energy for recreational activities more than once per week.	I exercised four to five times per week.	I increased intake of fruits and vegetables by two servings per day.
The expected level of attainment	0	I brushed my teeth and gums three times a day for myself.	I reserved some time and energy for recreational activities once per week.	I established a regular, routine fitness program three times per week.	I increased intake of fruits and vegetables by one serving per day.
Somewhat less than expected	-1	Brushing less than three times a day for myself.	No change in time and energy resources related to recreation.	Exercise less than three times per week.	No change in fruit and vegetable intake.
Much less than expected	-2	Brushing less than two times a day for myself.	Less time and energy resources reserved for recreation each week.	Very little or no exercise.	Decreased fruit and vegetable intake.

Abbreviation: GAS, Goal Attainment Scaling.



Examples

Goal 2: Dressing: After initial verbal instruction, M will independently don 3 articles of clothing with fewer than 3 redirections				
Hypothesized Sensory-Motor Factors: Decreased tactile and proprioceptive perception, specifically, and decreased praxis, including poor sequencing praxis for sequencing dressing tasks in the morning.				
Current Performance: M is physically capable of dressing himself in the morning but needs constant supervision and cuing to keep himself on task to accomplish the task				
-2	-1	0	1	2
Following initial verbal instruction, M will independently don 3 clothing items sequentially given 6-7 redirections	Following initial verbal instruction, M will independently don 3 clothing items sequentially given 4-5 redirections	Following initial verbal instruction, M will independently don 3 clothing items sequentially given 2-3 redirections	Following initial verbal instruction, M will independently don 3 clothing items sequentially given 1-2 redirections	Following initial verbal instruction, M will independently don 3 clothing items sequentially given 0 redirections

Examples

Level of Expected Outcome	Rating	Behavioral Statement of Expected Outcomes: Goal Statement 1	Behavioral Statement of Expected Outcomes: Goal Statement 2	Behavioral Statement of Expected Outcomes: Goal Statement 3
Much more than Expected	+2	Preparing portions out healthy, balanced meals most days of the week	Walking most days of the week for 30-45 minutes (while also monitoring current PA)	Added items to diet, went to gym, weight loss starting - 110 lbs
More than Expected	+1	5-6 days/week	5-6 days/week	100 LBS
Expected Outcome	0	4-5 days/week	3-4 days/week	100#
Less than Expected	-1	3-4 days/week	2-3 days/week	100 LBS 100 lbs
Much Less Than Expected	-2	3 or less days/week	2 or less days/week	100# or more

Taking a look at the Goals/Outcomes

- Can be labeled as:
 - Goal 1, Goal 2, Goal 3, Goal 4, Goal 5
 - With specific categories associated with the goals
 - OR
 - With specific detailed goals

Goal 1: Coping Skills	Goal 1: I use my coping skills to manage stress instead of getting depressed and angry
+2 (Much better than expected)	
+1 (Better than expected)	
0 (Expected Outcome): A detailed description of the coping skill you develop goes here.	
-1 (Less than expected)	
-2 (Much less than expected)	

This can be used in conjunction with other scales or other testing

- Overarching goal of: Improving ADLs
- Goal: Improve Cardiovascular endurance
- 0: The client walked 1.5 laps in the 12 minute run/walk test
 - +2: The client walked 3 laps in the 12 minute walk test
- 0: The client attempts to maintain an elevated heart rate for 1 trial of the modified 16 meter pacer test (15 minutes)
- With these, you need to do a base line testing to create the goal and expected level of achievement



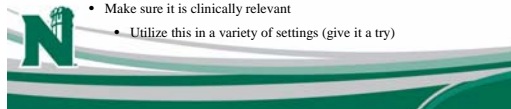
This could be used for specific programmatic review

- Goal: Needs of Client
 - 0: Client receives necessary program intervention services within 2 weeks of completing program assessment material
- +1: within 1 week
- +2: within 3 days
- 1: Within 3 weeks
- 2: Client receives necessary program intervention services within 4 or more weeks



Must Dos

- Do be specific in the descriptions and make them Present Tense
- All scale levels should be achievable and realistic
- Include an observable behavior
- Create a systemic approach to data collection
 - Use a standardized procedure
- Use a collaborate approach to goal setting
 - Involving several individuals in the organization of the GAS
- Communicate data with clients or care givers and with programmatic team
 - Use in conjunction with other assessments
 - Make sure it is clinically relevant
 - Utilize this in a variety of settings (give it a try)



Don'ts

- Vary the way you collect data
 - Be specific and consistent
- It has been identified that the person that sets the goals should not be the person that completes the treatment
 - Do to cost effectiveness, it is more realistic to have the therapist involved in the goal setting
- Do not have more than 1 variable you are assessing in an outcome
 - -2: *The child walks 100m with platform walker in 8 minutes with two hands on walker to assist with steering*
 - 3 variables exist: distance, time, and level of assistance. Break this up into 1 (have multiple goals for example)



Break out session




Level of Expected Outcome	Rating	Behavioral Statement of Expected Outcomes: Goal Statement 1 <i>Starting point info</i> <i>Realistic Goal goes here</i>	Behavioral Statement of Expected Outcomes: Goal Statement 2 <i>Starting point info</i> <i>realistic goal here</i>	Behavioral Statement of Expected Outcomes: Goal Statement 3
Much more than Expected	+2	Description goes here		
More than Expected	+1			
Expected Outcome	0			
Less than Expected	-1			
Much Less Than Expected	-2			

Client Name: _____ Start Date: _____ End Date: _____

Level of Expected Outcome	Rating	Behavioral Statement of Expected Outcomes: Goal Statement 1	Behavioral Statement of Expected Outcomes: Goal Statement 2	Behavioral Statement of Expected Outcomes: Goal Statement 3
Much more than Expected	+2			
More than Expected	+1			
Expected Outcome	0			
Less than Expected	-1			
Much Less Than Expected	-2			


Break out

- In groups
 - Identify 3 areas in which the Goal Attainment Scale can be used in Health and Wellness
- Let's share your results



Breakout

- Now, using the GAS form provided, identify 3 goals specific to your health and Wellness activity or program that you want your client/program to achieve (not the expected outcome)
 - Can be categorized
 - OR
 - Can be more specific sentences
- Now, WEIGHT each one from 1 to 5 (5 being the most important)



Breakout

- Using the GAS form given:
 - Write a behavioral statement for 1 goal (maybe the highest weighted one)
 - Include a statement for each outcome +2 to -2.
- Let's share



Reflection

- Review
- Thoughts about this process?
- Will you give it a try?



Thank you for your time!