

Tools Development: Mental Health Scale (MHS) for Secondary Students

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Abstract

Mental health is a way of describing social and emotional wellbeing. Good mental health is central to your child's healthy development. The researcher needs some data to test the hypotheses and these hypotheses according to the research objective. And tools are needed to collect this data. The researcher developed Mental Health Scale for secondary students here. The researcher took three dimensions of this questionnaire or scale, these are Emotional wellbeing, Psychological well-being & Social wellbeing. The researcher initially formulated 59 data items, each depicting the state of the Mental Health condition in clear term and each with five response alternatives (5- point Likert scale) In this way, finally the Mental Health Questionnaire consists of 42 items group of under 3 dimensions by the item analysis.

Introduction

Data collection is an important part of research. A research instrument is a tool used to collect measure and analyze data related to the researcher's research interests. This tool are commonly used in health sciences, social sciences and education to assess patients, clients, students, teachers, staff etc. The researcher needs some data to test the hypotheses and these hypotheses according to the research objective. And tools are needed to collect this data. The researcher used mental health tools for secondary students here. How this tool is developed is discussed below.

Assessment of Mental Health Scale

Mental Health

Mental health is a global term which refers to that condition of an individual which results from the normal organization and functioning of his mind (Dhawan, 1996). Mental health is a way of thinking, feeling and behaviour in a person's daily lives. A Person with a healthy mental health can recognize himself on the ability, willing to accept failure, able to control his/her emotions and appreciate himself / herself (Madlan, 2004). The first representation of Mental Health was proposed by Bears in 1908. Chauhan (1984) says, "The mental health is a condition which permits the maximum development of physical, intellectual and emotional status of the individual, so that he can contribute maximum to the welfare of the society and can realize his ideas and crisis of life". Menninger (1945) defined mental health as the adjustment of human beings to the world and to each other with a maximum of effectiveness and happiness. It is the ability to maintain an even temper, an alert intelligence, socially considerate behavior and a happy disposition.

Mental health is a way of describing social and emotional wellbeing. Good mental health is central to your child’s healthy development. It is associated with: feeling happy and positive about yourself and enjoying life; healthy relationships with family and friends; participation in physical activity and eating a healthy diet; the ability to relax and to get a good night’s sleep; and community participation and belonging (Kumar, S. & Bihari, S., 2015). Bhatia (1982) considers mental health as the ability to balance feelings, desires, ambitions and ideals in one’s daily living. It means the ability to face and accept the realities of life. On the basis, the researcher took the dimensions following there. The dimensions of the questionnaire are

Emotional Well-being: Emotional well-being is the ability to produce positive emotions, moods, thoughts, and feelings, and adapt when confronted with adversity and stressful situations.

- **Feeling contented:**
- **Healthy/tired:**
- **Lonely:**
- **Helpless/weak:**
- **Having faith in future:**

Psychological Well-being: Psychosocial well-being incorporates the physical, economic, social, mental, emotional, cultural, and spiritual determinants of health. Well-being of an individual includes coping with the various stresses of everyday living and realization of the full potential of an individual as a productive member of the society.

- **Self-acceptance:**
- **Personal growth:**
- **Optimism:**
- **Purpose in life:**
- **Self-direction:**
- **Positive relationship:**

Social Well-being: Social wellbeing is building and maintaining healthy relationships and having meaningful, authentic interactions with others. Community is made up of the people around you; your peers, mentors, faculty, family and colleagues.

- **Social-acceptance:**
- **Personal self-worth & usefulness to Society:**
- **Sense of community:**

Table- 01: Dimension-wise Analysis of the Mental Health with Item Number

Sl. No.	Dimension	Item Number	
1	Emotional Well-being:	Positive	Negative
	i) Feeling contented:	23, 27, 38, 39	10
	ii) Healthy/tired:		1, 2, 3, 4, 5, 15, 16.
	iii) Lonely:	6	7, 44
	iv) Helpless/weak:		11, 12, 13, 17, 20, 42
	v) Having faith in future:	14	32
2	Psychological Well-being:	Positive	Negative
	i) Self-acceptance:	19, 22, 48.	8, 9,

	ii)	Personal growth:	25, 36.	
	iii)	Optimism:	30, 31.	29,
	iv)	Purpose in life:	33, 34, 35, 46, 56.	
	v)	Self-direction:	18, 37, 43.	
	vi)	Positive relationship:	21, 26, 40.	
3	Social Well-being		Positive	Negative
	i)	Social-acceptance:	24, 41, 52, 53, 54, 57.	47,
	ii)	Personal self-worth & usefulness to Society:	45, 50, 51, 55.	
	iii)	Sense of community:	28, 49, 58, 59.	

There were numerous options for designing for proposed instrument. The researcher has responded out that the proposed questionnaire must be- i) Straight forward; ii) Objective based; iii) not to lengthy; iv) Cover each of the above aspects of Secondary School Students without any trace of ambiguity; v) Simple in design; vi) Ease of administration and scoring.

The researcher initially formulated 59 data items, each depicting the state of the Mental Health condition in clear term and each with five response alternatives:

1. Strongly Agree.
2. Agree.
3. Undecided.
4. Disagree.
5. Strongly Disagree.

There are 59 items, for each item you have to express your views by making tick (√) mark against the 5-point Likert scale, which is given below.

Table No -02: The scoring of the items of Mental Health scale

Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
5	4	3	2	1

There are 59 items in the Mental Health by researcher. The questionnaire consists of 38 positive and 21 negative questions. The scoring procedure of 5-point Likert scale is given below.

Table No - 03: The items of Mental Health scale

Nature of the Item	Items	SA	A	U	DA	SDA
Positive items		5	4	3	2	1
Negative items		1	2	3	4	5

Pilot study

The researcher at first draft of the test before going the systematic item analysis was administered on a government aided Secondary school students for understanding their reaction with respect to- 1)

Instruction of the test; 2) Meaningfulness of the test items; 3) The time examining for completion of the test; and 4) Identifying any probable bios.

In the present study, the researcher to establish the Reliability and Validity of this tool a pilot study has been conducted for a representative sample of 80 Secondary School Students selected from the areas of Jalpaiguri District in West Bengal. For the pilot study the male and female students selected from the 2 schools, their distributions are given bellow in the Table -

Table No- 04: Distribution of subjects for the pilot study according to gender and location

Gender	Rural	Urban	Total
Male	19	22	41
Female	21	18	39
Total	40	40	80

Item Analysis

Item analysis is another aspect in the construction of the test. Item difficulty and item discrimination are main part of Item Analysis. The item difficulty is simply the percentage of students who answer an item correctly and item discrimination of individual, completing the items successfully. Another part of item analysis is discrimination, which shown to the degree of knowledge of students by which it differentiates between those obtaining overall high and low total test scores. A few modified versions of the proposed test were administered to a total sample of 600 secondary school consisting of male and female studying at to schools. The answer sheets were arranged in descending order. After scoring, the top 27% cases and low 27% cases for each item were taken and ‘t’- test for each item was calculated to examine item – total correlation the obtain results of Item Analysis are being presented in following Table-

Table No – 05: Item Analysis by Mental Health Scale (MHS)

Sl. No.	Item No.	Higher Group		Lower Group		‘t’ Sig. Level	Significant/ Not significant
		Mean	SD	Mean	SD		
1	1	3.35	1.33	2.78	1.34	1.98	Significant at 0.05 level
2	2	3.30	1.40	2.95	1.61	0.008	Not significant
3	3	3.73	1.31	3.34	1.57	0.009	Not significant
4	4	3.41	1.35	2.17	1.28	5.09	Significant at 0.01 level
5	5	2.92	1.41	2.65	1.48	0.03	Not significant
6	6	4.46	0.85	3.84	1.37	2.15	Significant at 0.05 level
7	7	2.66	1.36	2.78	1.50	0.22	Not significant
8	8	3.88	1.30	3.12	1.24	5.71	Significant at 0.01 level
9	9	2.85	1.21	2.76	1.36	0.27	Not significant
10	10	3.86	1.01	2.54	1.21	5.92	Significant at 0.01 level
11	11	3.94	1.02	2.29	1.27	2.80	Significant at 0.01 level
12	12	3.10	1.34	2.71	1.36	0.004	Not significant
13	13	2.76	1.26	2.57	1.49	0.09	Not significant
14	14	4.22	1.16	3.14	1.49	4.53	Significant at 0.01 level

15	15	4.33	1.06	3.25	1.33	2.01	Significant at 0.05 level
16	16	3.62	1.07	3.02	1.42	2.14	Significant at 0.05 level
17	17	3.66	1.34	3.18	1.21	0.0001	Not significant
18	18	3.19	1.49	2.71	1.38	0.003	Not significant
19	19	4.08	0.76	2.96	1.38	1.98	Significant at 0.05 level
20	20	3.03	1.02	3.15	1.31	0.005	Not significant
21	21	3.78	0.98	3.15	1.31	8.20	Significant at 0.01 level
22	22	3.67	1.18	3.80	1.28	0.11	Not significant
23	23	5.62	5.44	3.80	1.28	2.53	Significant at 0.05 level
24	24	3.91	1.07	3.25	1.35	3.45	Significant at 0.01 level
25	25	4.75	0.49	3.35	1.34	6.84	Significant at 0.01 level
26	26	4.20	0.96	3.07	1.22	5.33	Significant at 0.01 level
27	27	3.99	0.88	2.75	1.37	8.53	Significant at 0.01 level
28	28	4.59	0.87	2.86	1.52	1.99	Significant at 0.05 level
29	29	3.17	1.34	2.85	1.07	0.01	Not significant
30	30	4.88	0.38	3.35	1.27	6.91	Significant at 0.01 level
31	31	4.37	1.04	3.43	1.73	2.56	Significant at 0.05 level
32	32	3.31	1.34	2.87	1.38	0.002	Not significant
33	33	4.19	0.92	3.26	1.28	1.03	Not significant
34	34	3.56	0.96	2.72	1.27	2.01	Significant at 0.05 level
35	35	4.06	0.93	2.83	1.24	2.95	Significant at 0.01 level
36	36	3.61	1.32	2.83	1.46	1.98	Significant at 0.05 level
37	37	3.84	1.13	3.25	1.25	2.22	Significant at 0.05 level
38	38	4.73	0.60	3.03	1.52	7.03	Significant at 0.01 level
39	39	3.62	1.51	2.68	1.35	2.61	Significant at 0.01 level
40	40	4.44	0.89	3.04	1.49	2.05	Significant at 0.05 level
41	41	3.69	1.36	2.89	1.54	9.59	Significant at 0.01 level
42	42	3.65	1.29	2.73	1.22	6.25	Significant at 0.01 level
43	43	4.52	0.67	3.03	1.41	9.99	Significant at 0.01 level
44	44	2.69	1.24	2.65	1.38	0.42	Not significant
45	45	3.22	1.21	2.41	1.27	3.90	Significant at 0.01 level
46	46	3.60	0.86	2.55	1.39	7.01	Significant at 0.01 level
47	47	3.11	1.16	2.64	1.28	0.0002	Not significant
48	48	3.22	1.35	2.94	1.32	0.04	Not significant
49	49	3.64	1.11	2.80	1.47	7.83	Significant at 0.01 level
50	50	3.78	0.97	2.91	1.18	3.72	Significant at 0.01 level
51	51	4.43	0.66	3.29	1.35	6.04	Significant at 0.01 level
52	52	4.40	0.75	2.65	1.36	2.23	Significant at 0.05 level
53	53	4.12	0.69	2.27	1.17	5.89	Significant at 0.01 level
54	54	4.35	0.74	2.77	1.38	3.94	Significant at 0.01 level
55	55	3.55	1.10	2.77	1.32	3.80	Significant at 0.01 level
56	56	3.85	1.20	3.11	1.31	5.90	Significant at 0.01 level

57	57	4.59	0.59	2.97	1.23	3.60	Significant at 0.01 level
58	58	4.67	0.62	3.01	1.50	3.82	Significant at 0.01 level
59	59	4.67	0.67	3.35	1.45	1.99	Significant at 0.05 level

Legend: N Total observations in each group

't' at 0.01 = 2.60, 't' at 0.05 = 1.97 when df = 160

** Significant at 0.01 level, * Significant at 0.05 level.

Final form the Test

In this way, the Mental Health Questionnaire consists of 42 items group of under 3 dimensions.

Table No -06: The dimension of Mental Health Scale

Sl. No.	Dimension		Item Number	
1	Emotional Well-being:		Positive	Negative
	i)	Feeling contented:	23, 27, 38, 39	10
	ii)	Healthy/tired:		1, 4, 15, 16.
	iii)	Lonely:	6	
	iv)	Helpless/weak:		11, 42
	v)	Having faith in future:	14	
2	Psychological Well-being:		Positive	Negative
	i)	Self-acceptance:	19	8
	ii)	Personal growth:	25, 36.	
	iii)	Optimism:	30, 31.	
	iv)	Purpose in life:	34, 35, 46, 56.	
	v)	Self-direction:	37, 43.	
	vi)	Positive relationship:	21, 26, 40.	
3	Social Well-being		Positive	Negative
	i)	Social-acceptance:	24, 41, 52, 53, 54, 57.	
	ii)	Personal self-worth & usefulness to Society:	45, 50, 51, 55.	
	iii)	Sense of community:	28, 49, 58, 59.	

Table No – 07: Final selection of the Item of Mental Health Scale

Sl. No.	Item No.	Higher Group		Lower Group		't' Sig. Level	Significant/ Not significant
		Mean	SD	Mean	SD		
1	1	3.35	1.33	2.78	1.34	1.98	Significant at 0.05 level
2	4	3.41	1.35	2.17	1.28	5.09	Significant at 0.01 level
3	6	4.46	0.85	3.84	1.37	2.15	Significant at 0.05 level
4	8	3.88	1.30	3.12	1.24	5.71	Significant at 0.01 level
5	10	3.86	1.01	2.54	1.21	5.92	Significant at 0.01 level
6	11	3.94	1.02	2.29	1.27	2.80	Significant at 0.01 level

7	14	4.22	1.16	3.14	1.49	4.53	Significant at 0.01 level
8	15	4.33	1.06	3.25	1.33	2.01	Significant at 0.05 level
9	16	3.62	1.07	3.02	1.42	2.14	Significant at 0.05 level
10	19	4.08	0.76	2.96	1.38	1.98	Significant at 0.05 level
11	21	3.78	0.98	3.15	1.31	8.20	Significant at 0.01 level
12	23	5.62	5.44	3.80	1.28	2.53	Significant at 0.05 level
13	24	3.91	1.07	3.25	1.35	3.45	Significant at 0.01 level
14	25	4.75	0.49	3.35	1.34	6.84	Significant at 0.01 level
15	26	4.20	0.96	3.07	1.22	5.33	Significant at 0.01 level
16	27	3.99	0.88	2.75	1.37	8.53	Significant at 0.01 level
17	28	4.59	0.87	2.86	1.52	1.99	Significant at 0.05 level
18	30	4.88	0.38	3.35	1.27	6.91	Significant at 0.01 level
19	31	4.37	1.04	3.43	1.73	2.56	Significant at 0.05 level
20	34	3.56	0.96	2.72	1.27	2.01	Significant at 0.05 level
21	35	4.06	0.93	2.83	1.24	2.95	Significant at 0.01 level
22	36	3.61	1.32	2.83	1.46	1.98	Significant at 0.05 level
23	37	3.84	1.13	3.25	1.25	2.22	Significant at 0.05 level
24	38	4.73	0.60	3.03	1.52	7.03	Significant at 0.01 level
25	39	3.62	1.51	2.68	1.35	2.61	Significant at 0.01 level
26	40	4.44	0.89	3.04	1.49	2.05	Significant at 0.05 level
27	41	3.69	1.36	2.89	1.54	9.59	Significant at 0.01 level
28	42	3.65	1.29	2.73	1.22	6.25	Significant at 0.05 level
29	43	4.52	0.67	3.03	1.41	9.99	Significant at 0.01 level
30	45	3.22	1.21	2.41	1.27	3.90	Significant at 0.01 level
31	46	3.60	0.86	2.55	1.39	7.01	Significant at 0.01 level
32	49	3.64	1.11	2.80	1.47	7.83	Significant at 0.01 level
33	50	3.78	0.97	2.91	1.18	3.72	Significant at 0.01 level
34	51	4.43	0.66	3.29	1.35	6.04	Significant at 0.01 level
35	52	4.40	0.75	2.65	1.36	2.23	Significant at 0.05 level
36	53	4.12	0.69	2.27	1.17	5.89	Significant at 0.01 level
37	54	4.35	0.74	2.77	1.38	3.94	Significant at 0.01 level
38	55	3.55	1.10	2.77	1.32	3.80	Significant at 0.01 level
39	56	3.85	1.20	3.11	1.31	5.90	Significant at 0.01 level
40	57	4.59	0.59	2.97	1.23	3.60	Significant at 0.01 level
41	58	4.67	0.62	3.01	1.50	3.82	Significant at 0.01 level
42	59	4.67	0.67	3.35	1.45	1.99	Significant at 0.05 level

Legend: N Total observations in each group 't' at 0.01 = 2.60, 't' at 0.05 = 1.97 when df = 160

** Significant at 0.01 level, * Significant at 0.05 level.

Standardization of the Test

The method for finding reliability of test scores in by repeating the identical test on a second occasion.

Reliability

The method for finding reliability of test scores is by repeating the identical test on a second occasion. The reliability of co-efficient for this test is simply the co-relation between the scores obtained by the same subjects (sample) on the two administrations of the test. The main concept for this procedure is that of stability. It answers the questions concerning how stable or dependable are measurements over a period of time.

In the present study re-test was done after an interval of 21 days. The test was re administered on a sample of 45 students subjects in the almost similar physical, psychological, mental and environmental conditions as were during the first administration.

Table No-08: Reliability Co-efficient of Mental Health Scale

Method	N	Reliability Co-efficient of Mental Health
Test-retest	45	0.86

Validity: The researcher used two types of validity for this questionnaire were estimated.

Face Validity: The questionnaire has satisfactory face validity because the items have been selected according to operational definitions of Mental Health in consultation by the experts.

Intrinsic Validity: The degree to which a test majors what it measures may be called its intrinsic validity. This definition may also be stated in terms of how well the obtained course the test’s true score components. This validity indicated by the square root of its reliability as shown in the following equation / formula.

$$r_t = \sqrt{r_{tt}}$$

Where, r_t = the correlation between obtained score and true score.

r_{tt} = Reliability coefficient of the test.

Intrinsic validity measures the independent ability of the test scores by showing how well obtained course agree with their true values. The validity for the test (Mental Health) thus determine has been given in the Table:

Table No- 09: Showing Validity from the Index of Reliability of the Test Scores

Sl. No.	Test	$r_t = \sqrt{r_{tt}}$	r_{tt}
1.	Mental Health	0.92	0.86

Setting up Norms for the Test Scores

In this study has been sued the two types Norms for calculated of 600 secondary students.

Norms in Terms of Mean and SD

The researcher has been finding out the norms in terms of Mean and SD.

Table No-10: Norms in Terms of Mean and SD of Mental Health Scale.

Scale	Urban Students [N = 300]		Rural Students [N =300]		Total Students [N = 600]
	Male [N =150]	Female[= 150]	Male [N = 150]	Female [N = 150]	
Mean	197.98	192.52	202.95	211.09	804.53
Median	200	196	204	214	814

Mode	205	231	210	214	860
SD	13.52	27.47	20.19	18.41	79.59
KU	-0.44	-0.69	-0.15	0.28	-1.00
SK	-0.41	0.05	0.12	-0.60	-0.84

Norms in Terms of Percentile

The researcher has been finding out the norms in terms of Percentile.

Table No- 11: Norms in Terms of Percentile for the Mental Health Scale.

Scale	Urban Students [N =300]		Rural Students [N =300]		Total Students [N = 600]
	Male [N =150]	Female [= 150]	Male [N =150]	Female [N =150]	
P₁₀	171.00	142.00	156.49	160.96	630.45
P₂₅	187.00	170.00	189.00	200.00	746.00
P₄₀	199.00	190.00	199.00	208.00	796.00
P₅₀	200.00	196.00	204.00	214.00	814.00
P₇₅	205.00	208.00	215.00	224.00	852.00
P₉₀	212.70	231.00	229.00	231.10	903.80
P₉₉	223.00	260.00	246.00	244.00	973.00

Procedure Followed

In the study was conducted on 600 students studying in government added school of four districts in West Bengal. The researcher visited the different secondary schools and requested the headmaster/ head mesas to allow for the purpose of data collection. Each test was individually administered on class 11th students. After seeking approval from headmaster and teachers the researcher visited the schools and established a rapport with the students. He/She told the students about the objectives of administering this test. It was explained that this test is for research purpose only and these have nothing to do with their examination. They were informed that no answer is right or wrong. So, they may feel free to write the answers. It was made clear that the data so obtained would be kept secret and will be used for research purpose only. Mental Health Questionnaire were administered to the subjects. The researcher remained in the classroom to supervise the students while they completed the tests.

After collecting the response sheets, the researcher herself scored the response sheets as per scoring rule of each tool used. The data collection season spanned over 3 hours per day and two months from July and August, 2023.