CONVERGENT AND DIVERGENT VALIDITY OF MUSIC RECEPTIVITY SCALE IN YOGA POPULATION

Dissertation submitted by

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Under the guidance of

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Towards the partial fulfilment of

Master of Science in Yoga (M.Sc. Yoga Therapy)

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CERTIFICATE

This is to certify that Monisha Mondal is submitting this Survey Research on "**CONVERGENT AND DIVERGENT VALIDITY OF MUSIC RECEPTIVITY SCALE IN YOGA POPULATION"** in partial fulfilment of the requirement for the Master of Science (Yoga) registered in **SWAMI VIVEKANANDA YOGA ANUSANDHANA (S-VYASA UNIVERSITY) BENGALURU** and this is a record of the work carried out by her in this institution.

Date: Dr Judu IIlavarasu

Place: Guide

DECLARATION

I, hereby declare that this study was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (S-VYASA), Bangalore, under the guidance of Dr. **Judu Ilavarasu** S-VYASA University Bangalore.

I also declare that the subject matter of my dissertation entitled "Convergent and Divergent validity on Music Receptivity Scale in Yoga Population" has not previously formed the basis of the award of any degree, diploma, associate-ship, fellowship or similar titles.

Date: **MONISHA MONDAL**

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Date: Monisha Mondal

Place: (Candidate)

STANDARD INTERNATIONAL TRANSLITERATION CODEUSED TO TRANSLITERATE SANSKRIT WORDS

अ	आ	इ	ई	उ	ऊ	ऋ
a	ā	i	ī	u	ū	ṛ
ॠ	ए	ऐ	ओ	औ	अं	अः
ṝ	e	ai	o	au	aṁ	aḥ

क	ख	ग	घ	ङ
ka	kha	ga	gha	~Na
च	छ	ज	झ	ञ
ca	cha	ja	jha	~na
ट	ठ	ड	ढ	ण
ṭa	ṭha	ḍa	ḍha	ṇa
त	थ	द	ध	न
ta	tha	da	dha	na
प	फ	ब	भ	म
pa	pha	ba	bha	ma

य	र	ल	व	श	ष	स	ह	
ya	ra	la	va	śa	ṣa	sa	ha	l̲a

ABSTRACT

Introduction:

This study is to measure validity of the Music Receptivity scale that attempts to measure an individual's degree of internalization to music. This is a study aimed at developing a feedback tool which would assist in the therapeutic application of music. Particularly, this study examines the convergent and divergent validity of the Music Receptivity Scale in the yoga population through a survey design. The MRS is easy to administer (it takes 30 minutes).

Materials and Methods:

In this study only self-report measures (questionnaires) were used, which are the following:

1. Mind wondering scale (MWS)
2. Interest in music scale (IIM)
3. Positive and negative affect schedule (PANAS-SF)
4. Music receptivity scale (MRS)
5. d2 test of attention

In this study, every participant is made to listen 13 minutes of music and immediately after that participant has to take d2 attention test. Immediately, next to the d2 test each participant has to finish the MWS, IIM, PANAS-SF and MRS questionnaires. This test is completed as a one-time assessment test.

Result: Music Receptivity Scale's interest domain, emotion domain, and attention domain could not produce the expected convergent validity, whereas other domains like hurdle, semantics has better convergent and divergent validity. We have observed a mixed result for convergent and divergent validity.

Conclusion: Music Receptive Scale has shown mixed results of convergent and divergent validity. Some of the domains of MRS were found to have good convergent and divergent validity whereas, a few others did not. Reproducing this study in a music skilled population can give us better insight about the nature of construct validity of music receptivity scale.

Key words: Convergent validity, Divergent validity, Music receptivity, Yoga.

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CHAPTER-1

INTRODUCTION

Music has been used since ancient times to improve well-being and diminish pain and misery. Music is an intended auditory provocation with organized elements, counting tune, tempo, synchronization, resonance, custom, and elegance. Monotonous listening permits the listener to recognize and guess sounds. Thus, frequent exposure may boost clinical properties. Though, extreme repetition may tip to monotony and impatience (Kemper & Danhauer, 2005). It is both science plus art. It mainly stimulates the artistic consciousness trade with the manifestation of one's sensitivity and sentiments and gives an uncontrolled bliss and cheerfulness. In this state, song empowers a man to appreciate the inherent splendour of nature and the inspirational serenity of the soul as well (Nagarajan, 2016). Classical music is also used as a tool for moderation and stress reduction, consequential in self –reported, behaviour and physiological variations that are related to reducing stress. Physiological deviations related to listening to classical music and related to reduced stress included noteworthy drops in b-endorphin as well as in serum cortisol (Scheufele, 2000).

Music is regarded as a strength-based resonance where it is used in eliciting inner resilience and building capacity for intra and interpersonal communication. Music allows the expression of unmanageable and silenced unconscious material as well as what is innately creative, resilient and healthy, it also conveys messages and emotions and has a clinical purpose and enhances self- expression. Receptive in music elicited imagery associated with joy, happiness, and freedom, articulating most strikingly the desire for happiness, freedom, and growth. Music is known to be pleasurable and energizing, improvisation as being fun and associated imagery as positive feelings (Lotter, 2018). The idea of music as therapy is based on ancient cross-cultural beliefs that music can have a 'healing' effect on mind and body, clarification for therapeutic mechanisms in music has almost always included cultural and social science-based causalities about the uses and functions of music in society. It is also important to note that the view of music is always influenced by the view and understanding of the concepts and causes of disease. The early-twentieth century years were the scientific foundation of medicine and that also allowed the foundation of music in therapy to progress from no science to soft science and most recently to actual brain science (Thaut, 2015). Historical interpretations of the therapeutic mechanisms in music have almost always

emphasized on educational, emotional-motivations (cathartic) or spiritual and as well as religious models of the elucidation and application. The main physical foundation of music consists of chronological sound arrangements generated by vibrant objects with the resonance of bodies that are actually transmitted to vibrating air molecules to the human hearing system (Thaut, 2015). Music anthropology studies have shown that how music expresses our own expressions, emotions, concepts or events in different cultures. Joy, cheerfulness, sadness, and loss, values and norms can all be expressed through music, which conveys the concept and feelings symbolically. Music is also the intangible auditory language; early humans might have had the ability to think "music" cognitively as am abstract aesthetics "sensory" language and then assigned expressive meaning to it. It also shows that autonomous abstract languages of the human brain, whose development was eventual to the emergence of the cognitive ability to construct symbols. The use of music is to mediate in an unintended way with which the paranormal realm of- spirits or gods- is also a prevalence practice in some cultures. In ancient times illnesses were understood as being caused by divine interference as curses or punishment, healing can only come from the divine realm. Music was used to access that realm, shifting the perspective of music towards therapy. The systematic discovery that music can always give insight and can create neoplastic changes has led to the understanding that music therapy can address specific brain and behaviour dysfunctions, and in the meanwhile it also took linkage of the musicology and neurosciences to base music in therapy (Thaut, 2015).

Validity is the concept that checks if a thing is serving its purpose what it is supposed to serve. Extent to which scores from a measure signify that variable they are intended to, they are considered as valid. Along with validity, to check the strength of a new concept, we also check reliability, which is the concept which conveys the consistency of measurement. For example: object should show same weight if measured twice. There are various types of validity like internal validity, external validity, construct validity, statistical validity. In this study we have attempted to study the convergent and divergent validity of the Music Receptivity Scale. Specifically, we assessed: 1) Convergent validity and 2) Divergent validity.

Convergent validity is a parameter which is used in psychology, sociology, behavioural sciences. It conveys if the new measure shows positive correlation with the other known concepts (Guo, Aveyard, Fielding, & Sutton, 2008). Whereas in divergent validity signifies to the distinctiveness of different constructs, on the other hand, it is the extent to which scores

on a measure are not correlated with measures of variables that are theoretically distinct. Discriminant validity by showing that participant's scores were not correlated with certain other variables (Guo et al., 2008).

Need and scope of the study

Till now there are many tools that were developed in music field to study the preference of a person towards music, music aptitude, musical ability, interest in music etc., however, no measure was developed that shows the degree of internalization of music. This was termed as music receptivity. As a part of another major study, the scale was developed and its psychometric properties were evaluated using factor analysis, and there was a need to assess the construct validity using correlation method, and for this this study was planned in which convergent and divergent validities are studied. On successfully establishing the validity of this new Music Receptivity Scale, it can be used for different contexts. Current study is based on a yoga-based sample.

CHAPTER 2

ANCIENT LITERATURE REVIEW

Music must be profound origins in the heart of Indian culture. The central elements of Indian classical music follow: **Nada, Sruti, Svara, Raga, Tala, Rasa and Thata**. The position mishmash in-between type of music, unambiguous tonal quality, portraying the particular aesthetic mood, with the right type of melody, played at a suitable time result in the basics of Indian Music Therapy. The significance and definition of these music elements are called out from various Indian Classical texts on music. (Nagarajan, 2016)

NADA

Prime and significant component of musical structure is Nada. It is the primary foundation of the phenomenal world; five basic elements which establish life are earth, water, fire, air, and ether. These basic elements are recognized by the compatible senses of smell, taste, vision, touch, and earshot. Out of these, Ether is the superlative universal and the cause of the rest. Sound is considered to be a replication of Nada which is considered as Nada Brahma in sastras. A sound which has approved quality with a single frequency or mishmash of related frequencies, melodious to the Nada. It is also a fundamental part of the music. In Indian musical structure, Nada has recognized in numerous ways.

Primarily, it is occupied as over-all sound on which the whole universe is based, in Sangeeta Ratnakara by Sharangadeva describes it as follows:

नादेन व्यज्यते वर्णः पदम् वर्णात्पदाद्वचः ।
वचसो व्यवहारोऽयं नादाधिनमतो जगत् ॥

nādena vyajyate varṇaḥ padam varṇātpadādvacaḥ।
vacaso vyavahāro'yaṁ nādādhinamato jagat।।

(S.R., VoL:, Sec: 2, v: 2)

Nada establishes the letters of the alphabet, the letters from words and those words make a sentence which is the foundation of speech, it also controls human performance. Henceforth we can say that the whole world is bounded with nada.

चैतन्यम् सर्वभुतानाम् विवृत्तम् जगदात्मना ।

नादब्रह्मम् तदानन्दमद्वितीयमुपास्महे ॥

caitanyam sarvabhutānām vivṛttam jagadātmanā।

nādabrahmam tadānandamadvitīyamupāsmahe।।

नादोपासन देवो ब्रह्मविष्णुमहेश्वरः ।

भवन्त्युपासित नूनम् यस्मादेते तदात्मकाः ॥

nādopāsana devo brahmaviṣṇumaheśvaraḥ।

bhavantyupāsita nūnam yasmādete tadātmakāḥ।।

(S. R., Vol: 1, Sec: 3, vs 1 and 2)

Nada is measured as a divine force- way to comprehend God. In Indian Philosophy, Nada has had a very noteworthy and prominent residence and has been detected as a means to free oneself from the material bondage of life. It has always has been knowing that worship of Nada, is the worshipping of the Supreme Consciousness.

नकारम् प्राणामानम् दकारमनलम् ।

जातः प्राणाग्नि संयोगात् तेन नादोभिधीयते ॥

nakāram prāṇāmānam dakāramanalam।

jātaḥ prāṇāgni saṁyogāt tena nādobhidhīyate।।

(S. R.,Vol: 1, Sec: 3,Vs: 6)

The word Nada is shaped by combining two words Na and Da. Na means Nakar which exemplifies the vital force and Da means Dakar which epitomizes fire. Therefore Nada is produced by the interaction of the vital force and fire.

Process of the manifestation of sound in the human body

आत्मा विवक्षमणोऽयम् मनः प्रेरयते मनः ।

देहस्थम् वह्निमहन्ति स प्रेरयति मारुतम् ॥

ब्रह्मग्रन्थिस्तितः सोऽथ क्रमाधूर्द्वपथे चरन् ।

नाभिहृकंटमोर्धास्येष्वाविर्भावयति ध्वनिम् ॥

ātmā vivakṣamaṇo'yam manaḥ prerayate manaḥ।
dehastham vahnimahanti sa prerayati mārutam।।
brahmagragnistitaḥ so'tha kramādhūrdvapathe caran।
nābhihṛkaṇṭamordhāsyeṣvāvirbhāvayati dhvanim।।

(S. R., Vol: 1, Sec: 3, vs: 3 and 4)

Longing for of communication the individuated being of the mind and the mind is also automatically activities the battery of power situated in the body which in its turn encourages the vital force. The vital force placed from one place to another the root of the navel, rising upwards gradually expresses nada in the navel region, the heart, the throat, the cerebrum and the cavity of the mouth as it passes through them properly.

In Nada there are two types of Nada- Ahata Nada is of two kinds – musical and non-musical. That which is produced by regular feels is called musical and that in which the vibrations are irregular will produce unmusical sound or noise.

Although Anahata accurately means is 'unstuck'- the sound which, already present in the Universe perceptible only to the seers and homebodies, adulated by the saints to free themselves from worldly illusions.

In the Ahata Nada is an object of sense perception and Anahata Nada matter of mystic experience of Yoga in which sound and light are effused together.

नादोऽतिसूक्ष्मः सूक्ष्मश्च पुष्टोऽपुष्टश्च कृत्रिमः ।

इति पंचविधा धत्ते पंचस्तितः क्रमात् ॥

nādo'tisūkṣmaḥ sūkṣmaśca puṣṭo'puṣṭaśca kṛtrimaḥ।
iti pañcabidhā dhatte pañcastitaḥ kramāt।।

(S.R., Vol: 1, Sec: 3,vs: 5)

Nada demonstrates herself in the human body and thus there is direct awareness. Inherent sound in the human body is grouped into five types on the basis of its superiority of improvement from the source of the navel to the cerebrum and the buckle cavity of the mouth concluded the heart and throat. Stationed in these five places Nada takes on five different names as accompanying with them respectively that is tremendously subtle, loud, not so loud and artificial.

व्यवहारे त्वसौ त्रेधा हृदि मंन्द्रोऽभिधीयते ।

कंठे मध्यो मूर्ध्नि तारो द्विगुणश्चोत्तरोत्तरः ॥

vyavahāre tvasau tredhā hṛdi manndro'bhidhīyate।

kaṇṭhe madhyo mūrdhni tāro dviguṇaśrottarottaraḥ।।

(S.R., Vol: 1, Sec: 3, vs; 7)

Though in unaffected practice it is three fold called mantra in the heart, Madhya in the throat and tara in the head and is sequentially double in pitch.

Sruti

तस्य द्वाविंशतिर्भेदाः श्रवणाच्छ्रुतयो मताः ।

tasya dvāviṁśatirbhedāḥ śravaṇācchrutayo matāḥ।

(S.R., Vol: 1, Sec: 3, vs : 8)

In Nada is discriminated into twenty-two grades which for the reason that of their audibility are known as Sruti.

Through Matanga in Brihaddesi pronounces:

श्रूयन्त इति श्रुतिः

श्रु श्रवणे चास्यधातोःक्तिन् प्रत्यय समुद्भवः ।

श्रुतिशब्दः प्रसाध्योयम् शब्डग्नैः कर्मसाधनः ॥

śrūyanta iti śrutiḥ

śru śravaṇe cāsyadhātoḥktin pratyaya samudbhavaḥ।

śrutiśabdaḥ prasādhyoyam śabḍagnaiḥ karmasādhanaḥ।।

The origin Sru means which is audible sound, free from timber, devoid of tonal color. The indispensable characteristics of the Svara. The least but audible difference between two uninterrupted notes or Svara is well-defined as Sruti. Sruti is apprehended together as a "musical interval" which makes up the notes of the octave and a pitch position. The term Sruti is used in another sense also. The range in which a person's voice is easily negotiable in three octaves namely mantra(lower), Madhya (middle) and Tara (upper octave) is called Sruti of the voice. The base note chosen by the singer or player (in the case of instruments) is called the Adhara Sadja or Adhara Sruti. As soon as the base note is immovable, all the other notes fall into prearranged places spontaneously. This is the orientation in the direction of which other instruments and tanpura are tuned accordingly, to create harmony and synchronization. The word Sruti means 'that which is heard'. In Sanskrit word, Sruti is rendered into English as 'microtone'.

SVARA

स्ताते रंजयति श्रोत्रु ।चित्तम् सस्वरमुच्यते ।

श्रुत्यनन्तर भावेयः स्निग्धोऽनुरण्नात्मकः ॥

svato rañjayati śrotru cittam sasvaramucyate।

śrutyanantara bhāveyaḥ snigdho'nuraṇnātmakaḥ।।

(S. R., Vol: 1, Sec: 3, vs: 24)

Svara is defined as the sound which is revealed immediately after the Sruti. Creamy and smooth, resonating and which by itself gives pleasure to the litenser.

The major difference between Sruti and svara is implied is here. When a string of the veena is plucked the very first sound produced is considered to be Sruti and the very next sound following it which is resounding of the Sruti is called svara. In other words whereas Sruti is essentially free from resonance, resonance is the essential character of the svara.

(Amarakosa Natyavarga)

Sadja, Risabha, Gandhara, Madhyama, Pancama, Daivata and Nisada are the seven svaras which is named after the first letter, namely sa , re, ga ,ma , pa, dha, ni. These can be

produced by strings as well as voice. Matanga in Brihaddesi gives the reasons for the naming of the svaras as sa, re, ga, ma, pa, dha, ni.

स्वराणम् म्ध्यमत्वाच्च मध्यम स्वर इष्यते ॥

svarāṇam mdhyamatvācca madhyama svara iṣyate||

Madhyama is so called because it is in the center of the seven notes having three on either side.

स्वरांतराणाम् विस्तारम् यो मिमीते स पंचमः ।

पाठक्रमेण गणने संख्या पंचमोतथा ॥

svarāntarāṇām vistāram yo mimīte sa pañcamaḥ|

pāṭhakrameṇa gaṇane saṅkhyā pañcamotathā||

Pancama is that which measures the extent of others notes: or it is so called because it is fifth from the fundamental note.

धीरस्यास्तीति धीमस्तत् संबंधी धैवतः स्मृतः ।

षष्टस्थाने धृतो यस्मात्तेनासौ धैवतो मतः ॥

dhīrasyāstīti dhīmastat sambandhī dhaivataḥ smṛtaḥ|

ṣaṣṭasthāne dhṛto yasmāttenāsau dhaivato mataḥ||

Dhaivata which comes in the sixth position and that which invokes courage and valence.

निशीदंति स्वरास्सर्वे निषादस्तेन कथ्यते ॥

niśīdanti svarāssarve niṣādastena kathyate||

Nisada is so called because the notes of the scale come to a close with it.

RAGA

योऽसौ ध्वनिविशेषस्तु स्वरवर्ण विभूशितः ।

रंजको जनचित्तानम् सराग कथितोबुधैः ॥

रंजक स्वर संदर्भो सराग इत्यभिधीयते ।

स्वरवर्ण विशिष्टेन निभेदेन वा पुनः ॥

रज्यते एन सत्चित्तम् सराग सम्मतम् सताम् ॥

yo'sau dhvaniviśeṣastu svaravarṇa vibhūśitaḥ।
rañjako janacittānam sarāga kathitobudhaiḥ।।
rañjaka svara sandarbho sarāga ityabhidhīyate।
svaravarṇa viśiṣṭena nibhedena vā punaḥ।।
rajyate ena satcittam sarāga sammatam satām।।

That particular sound which is embellished by musical tones and the movement of tonal patterns and is thereby delightful to the people's mind is called Raga. It is used general sense od emotional color or aesthetic enjoyment or pleasure.

Raga is Svara Sannivesa i.e. Melodic patterns of the Svara. The word Raga is derived from the root Ranj in Sanskrit means to please. Further, its general lexical meaning is also an emotion, color and so on. Analogously, a melody is a flow of sound up and down, with various rhythmic distributions. When we abstract these characteristics and make a type, it becomes Raga- musical language.

Venkatamakhi in Catrudandi Prakasika

Graha, Amsa, Mandra, Tara, Nyasa, Apanyasa, Vinyasa, Bahutva and Alpatva are the ten features of Raga. Among these Graha, Amsa and Nyasa are important.

TALA

Parsvadeva in Sangita Samaya Sara says

ताळ शब्दस्य निश्पत्ति प्रतिषर्थेन धतुना ।

स तालः कालमनम् यत् क्रियया पारिकल्पितम् ॥

tāḻa śabdasya niśpatti pratiṣarthena dhatunā।
sa tālaḥ kālamanam yat kriyayā pārikalpitam।।

Bharata has described Music a svaratalapadatmakah which means a composition which is comprised of the svara, tala, pada i.e. tone ,metre and verse.

Parsvadeva in Sangita Samaya Sara says

ताळमूलानि गेयनि ताले सर्वम् प्रतिष्टितम् ।

ताळहीनानि गेयम् मंत्रहीन यताहुति ॥

tāḷamūlāni geyani tāle sarvam pratiṣṭitam।

tāḷahīnāni geyam mantrahīna yatāhuti।

Every type of music is dependent on the tala. Rendering musical composition without tala is like offerings made to the supreme without a hymn.

हस्तद्वय्स्य संयोगे वीयोगे चापि वर्तते ॥

hastadvaysya saṁyoge vīyoge cāpi vartate।।

Tala is a measure of time in music. It regulates the relative duration of musical sounds. Time measured by the beats of the hand is called tala. Tala has two parts sasabha kriya and nissabdha kriya. A beat stands for a sasabdha kriya; Nissabdha Kriya is represented in the turning of the palm and counting on the fingers.

RASA

In the musical sense the term Raga, came to use as a group of notes having specific frequencies roused a particular feeling. With the background of Sruti, the emotional effect of a Raga was clearly perceived. When the background of Sruti, the emotional effect of a Raga as clearly perceived. When the mind becomes stand still or fixed in a particular aesthetic feeling or mood. This experience becomes Rasa.

Since Bharata Natyasastra first expounded the doctrine of Rasa with its eight categories, viz., love or happiness, gaiety or humor, compassion, fury, valor, awesomeness, loathsomeness, and wonder. From the third or fourth century onwards silence or tranquillity was not only added as the ninth category but considered as the supreme Rasa. All Indian arts, including music, attempts at transcendence and is thus are of unique quality; every Rasa has a corresponding method and a path leading a person on to experience reality as defined in Indian philosophies.

शृन्गार वीर करुणाद्भुत हास्यभयानकः ।

बीभत्सस्च तथा रोद्रो नात्येद्य्श्तो रसाः स्मृतः ॥

śṛngāra vīra karuṇādbhuta hāsyabhayānakaḥ।
bībhatsasca tathā rodro nātyedyśto rasāḥ smṛtaḥ।।

Rasa is realized when an emotion is awakened in such a manner that it has none of its cognitive tendencies and it is experienced in an impersonal contemplative mood. Rasa is a realization of the ultimate truth, the fruition of aesthetic experience.

In Taittiriya Upanishad states –

रसो वै सः। रसम् ह्योवायम् लब्ध्वा आनंदीभवति

raso vai saḥ। rasam hyovāyam labdhvā ānandībhavatiThe happiness derived by the experience of a Rasa through music and poetry is not material. It is transcendental inner happiness which takes away the pain and miseries. When a musician and the listenser is deeply immersed in such experiences of Rasa, it is also called Rasa vada.

Thata or Mela

Thata means a scale of sequentially – arranged all seven notes in the ascending order, and all seven notes in the descending order. The scales were known melas, Thatas or melakartas and they suggest the idea of steps or laddere (Latin – scala), which suggests the gradual arrangements of tones , so as to form a basic structure that gives birth to various melodic forms or Ragas. The scale is therefore the origin or fountainhead of the ragas. The terms Thala and meal was well defined by Pandit Somnath from 17th century, also in Sanskrit name for the origin of raga is mela which helps to assimilate different tones and the term, Thala is of the Persian origin. The idea of scale really evolved in the most ancient India in the Vedic time, because it has been found that the Vedic songs or samagama with different tones had a fixed scale and it was in a downward movement, whereas in western music Thalas are similar to “modes”.

CHAPTER 3

REVIEW OF SCIENTIFIC LITERATURE

S. no.	Author	Sample size	Intervention/duration	Results/discussion
1	Sarah judde,Nikki Rickard	127	Musical piece following delays 0,20,45 min	Retention was significantly enhanced, the control group was not exposed to any musical stimuli.
2	Joel E. Resnicow and Peter Salovey	24 (15 women,9 men)Undergraduates	Classical Piano Music,Musical stimuli consisted of three short piano pieces	Emotional intelligence and Emotional recognition in the music task was significantly correlated(r=.54)
3	Lutz J. et.al.,	30 participants(25 women and 5 men)	Electronic pop song and classical musical piece	Focus of attention has a strong influence on the neurophysiological responses to the pop song but not on the responses to the classical music piece.
4	Yan s., et.al.,	71 participants (40 in HMML and 31 in	Heavy metal music or classical music for at	Compare with CML, HMML

		CML)	least one year on an average at least five hours every week	showed higher fALFF in the right precentral gyrus (PreCG), PCL, MOG. Lower fALFF was observed in the left middle superior frontal gyrus.
5	Weiyi M. et al.	15 normal hearing right-handed Chinese male	3 min piece of music of happy birthday piano	ORI paired t-test showed that the G key music was rated to be more lightly then ORI then the two modulating music
6	Peter M.et.al	67 Normal Male	Progressive relaxation music for experimental group, Attention controlled group gives only silence.	Relaxation however resulted in the greatest effort on behavioral and self-report measures of relaxation, suggesting that cogitative cues provided by stress management techniques contribute to relaxation.

7	Kerm P. et.al	4 Autism boys	An outdoor music center and using original songs composed for each participant	The musical adaptation of the playground itself didn't improve social interactions of children with autism significantly but it facilitated their play and involvement with peers by attraction to the sound and opportunity to use the instrument.
8	Micheal H. et.al	130 prisoner patients, Music therapy group, instrumental group, music-relaxation group	In first group given guided music as well as individual music choice, in second group patient played under the guidance of the music therapist on percussion, key board and guitar, and the third group listening to sedative music selected by patients.	A significant change in self-perceived rating scores all scales before verses after music therapy.
9	Marcel Zentner et.al.	Participants were 52 psychology students (18 males and 34 females)	Conducted four studies to validate two brief measures from the Profile of Music Perception Skills	Measurement sophistication is oddly imbalanced in much current research on

			(PROMS) about 1 hr, short(PROMS)it is for half an hour, mini(PROMS) takes 15 mins to complete which measures good internal consistency and retest reliability.	correlates of musical ability, using standardized tests can help to redress this imbalance.
10	Edward Gifford	123 students completing first level course	Students training course a 12 week(3 Hours per week) introductory course, also performed two music ensembles in small groups afterward who elected to pursue completed seven courses.	Investigation confirmed general primary pre-service teachers low perception of their competence and confidence as music teachers that limited gain in music and music teaching skills were offset by their enjoying and valuing music and music education less.
11	Sima H.et.al	Total 100 participants- 4 year –old(29 female, 21 male) and other 50-5-year-old (30 female and 20 male) children recruited from schools	The piano instrument on audio tape a stereo cassette player and played for each student individually in a quiet room for 20-30 min with comfortable volume.	The results of this study indicate that music perception skill is reliably related to phonological awareness and early reading

				development.
12	Peter M.et.al	67 normal male participate, age range- 18 to 59 years.	Exposed to a stress manipulation and then one of two relations (Progressive Relaxation, Music audio tape for 15 min) or control(Attention Control, Silence were not provided with a tape) conditions.	Music group had a lower heart rate than Attention Control Group, music condition group reported the highest scores on a behavioural measure of relaxation, significantly more relaxed and less tense, whereas the experimental group reported themselves more distracted.

CHAPTER- 4

AIM AND OBJECTIVES

AIM AND OBJECTIVES

AIM –

To find out the validity of Music Receptivity Scale.

OBJECTIVES –

- To find out the validity of music receptivity scale, and in a (bhajan) setup especially in Yoga population.
- To find out the convergent validity on Music Receptivity Scale in Yoga Population.
- To find out the divergent validity on Music Receptivity Scale in Yoga Population

RESEARCH QUESTION

Trying to see the internalization of a given piece of music, there is an experience of multiple numbers of emotions but what is the real experience happening during that time while playing the piece of music for (13 mins) in yoga population? To what extent the participants have internalized the feelings of music within?

Hypothesis

A piece of music given for 13 mins the measurement of music receptivity using the new music receptivity scale will have adequate convergent and divergent validity.

CHAPTER-5

METHODS AND MATERIALS

Sample

a) Source:

Swami Vivekananda Yoga Anusandhana Samsthana (SVASA), Prasanthi Kuthirram, Bangalore

b) Sample size:

Total n= 72 in Yoga population, mainly students undergoing various academic courses.

c) Age :

Male mean age: 26 years

Female mean age: 25 years

d) Gender:

Male Participants: 28

Female Participants: 44

Inclusion Criteria

- Adult in the age group of 20 – 26 years both girls and boys.
- Regular practice of yoga every day.
- Healthy participants.

Exclusion Criteria

- Those who are not practicing yoga at all.
- Any chronic illness and mental illness.
- Those who are not willing to a participant.

Informed Consent

An informed consent form is given to individual participants for permission of data collection and they took part voluntarily with high interest.

Design of the study

Survey study

The survey is a process for accumulating of information or data collected from individuals. A survey contains only a questionnaire (or a series of questionnaires that are correlated to research participants who answer those question by themselves). It is also known as self-report data because the participants are giving their information themselves. This study is also used to get an idea of how a group of a population actually feels about a number of things. A survey can be a way for participants to measure how often they engage in various behaviours (Goldflam, Papanagnou, & Lewiss, 2018).

Steps- Problem selection and formulation, design, scales and indexes sampling, tools for collection, data collection, and analysis of data. The study may cover a small, highly selected universe or a border population (Goldflam et al., 2018).

Structure of sessions

Here all the participants were already trained through yoga and they are regular practitioner also, it is a one-time assessment survey study with no pre and post assessments. All the participants were assessed after the intervention on various tools such as - d2 test of attention, MWS, IIM, MRS, and PANAS-SF.

Before starting the data collection the participant get to know from reasearcher how to perform the d2 test of attention and then others questionnaire. The d2 test of attention had given proper instructions, so there is a paper and pencil for every one and this test asks participants to cross out any letter of ‘d’ with two dashes around above it or below it can be any order. There is distractors which will distract the participant but the participant should perform carefully with full awareness, there are 14 rows each row the participant have to complete within 20 secs, the instructor will say start and stop and the participant should change each time for each row and perform their task within the time bounded period. Here in d2 test they are not supposed to skip any rows.

Then soon after they have to fill other questionnaires. If the participant have any doubts they have to ask to the instructor or other people who are helping the researcher for their data collection, during the process they suppose not ask any question but specially in d2 test of attention strictly the participant should not ask any doubts, and get distracted while doing the test.

Assessment Tools-

1) Mind Wandering Scale

Mind- wandering is the primary focus of this investigation. It intends to measure the frequency of mind- wandering and characteristically described as the interruption of the task – focus by task unrelated thought. Consistent with this usage, the most common and direct assessment of mind – wandering involves periodically interrupting individuals during a task and asking them to report the extent to which their attention was either on task or non- task related concerns. This scale can directly measure trait levels of task-unrelated thoughts and also measures the presence or absence of attention and awareness towards what is occurring in the present. It is also examined that how mind wandering is connected with reading ability, stress, self- esteem, mood and life stratification. (Mrazek, Phillips, Franklin, Broadway, & Schooler, 2013).

2) Interest in Music Scale

It is a scale to measure interest in music, which is similar to music therapists working in the field of mental health. These were combined and discussed in relation to research in the realm of music in everyday life. The scale was conceived as a self- report scale in order to reflect the participant subjective experience with music in everyday life. In this work, most of the items were designed to measure the positive aspects of the different types of music engagement, such as making music, listening to music, and another type of music-related experiences. Furthermost, many items related to the social aspects of music, which is in recognition of the contextual and relational dimension of interest and engagement in music. To measure positive, pro-social aspects of being interest in music, they can also be seen as representing a different dimension (Gold, Rolvsjord, Mössler, & Stige, 2013), which is depending on the correlation structure between the items,

3) Positive and Negative Affect Schedule (PANAS-SF)

Positive and Negative Affect Schedule(PANAS) is based on a model which posits the existence of two independent dimensions- positive affect and negative effect. The positive dimension refers to a state of emotional well- being where the person reports felling enthusiastic, alert or happy. Whereas negative dimension refers to a state of emotional distress and is accompanied by feelings such as sadness, lethargy or anger. The positive and negative affect dimensions to have a low or non-significant correlation with one another. Studies also indicate that positive and negative affect operates through different mechanisms to influence health. People with high positive affect are more likely to participate in social activities, report higher life satisfaction. Whereas persons with high negative affect are more likely to be depressed or anxious or report additional health complaints. The PANAS does not include somatic items.(Ostir, Smith, Smith, & Ottenbacher, 2005). The five positive affective states are: active, determined, attentive, inspired and alert. The five negative affective states are as follows: afraid, nervous, upset, hostile, and ashamed. Respondents are asked to rate these positive and negative adjectives according to the extent to which each describes the way they have felt during the specific time, it can investigate the cross-sample stability, internal reliability, convergent and criterion-related validities of the scale and found the scale to be psychometrically acceptable.(Karim, Weisz, & Rehman, 2011).

4) d2 Attention Test

d2 test for attention is a well-established neuropsychological way for assessing selective and sustained attention and visual scanning speed. This test has been a particularly useful measure of attention and concentration processes (Brickenkamp & Zillmer, 1998). In D2 test attention of a participant is aperfomed with the help of pen and paper, where he/she asked to cross out any letter "d" with two marks around above it or below it in any order, which are interspersed in between non-target letter, which is like’ with single dot or ‘p’ with single or double dots. Hence, this test reduces the competitive advantage of the targets and requiring more complex processing because competition for attention is high. In this test, a large number of visually similar objects occur in the visual field and this makes attentional control becomes more computationally challenging. This is because the stimuli will compete for attention (Desimone & Duncan, 1995; Luck & Vecera, 2002). In this assessment, due to their physical similarity to the target, distracters would be expected. To make this test more productive mental template and neural representation of the target must be complex to differentiate d2 targets and non-targets. Also, this should be allowed for detection of varying stimulus

configurations of targets (i.e. the target letter' with varying spatial configurations of two dashes).(Ross, 2005)

Validity of the Test

Date were collected on 72 participants both genders without any intervention. The correlation was made for the data collected after 13 minutes given a piece of music.

For divergent validity we used the following pairs of correlation:

1. Music Receptivity Sclae (MRS) Attention Vs MWS
2. MRS Attention Vs E (Error total)
3. MRS Emotion Vs PANAS - neg
4. MRS Emotion Vs IIM,

For convergent validity the following pairs were used:

1. MRS Interest Vs IIM
2. MRS Hurdle Vs MWS
3. MRS Emotion Vs PANAS – Pos
4. MRS Attention Vs d2 (CP)
5. d2 (FR) Vs MWS
6. MRS Semant Vs d2 (CP)

Intervention

S.NO.	Intervention	Time (min.)
1	Starting prayer	3
2	Bhajan	13
3	d2 test of attention	4.33
4	Music receptivity scale	10
5	Interest in music (IIM)	5
6	Positive and negative effect schedule (PANAS-SF)	5
7	Mind wandering scale	3
8	Closing prayer	2
Total duration of intervention: 45.33		

CHAPTER- 6

DATA EXTRACTION, ANALYSIS AND RESULTS

Data Extraction

The first scale- In d2 test of attention: From the raw data, we extracted only TN, E1, E2, E, E%, TN-E, CP, FR. The full form of TN is 'Total Number of Items Processed', it is a qualitative measure of performance of all the items both relevant and irrelevant ones. In E(Errors) is the sum of all the mistakes which also includes the error of omission(E1) it means when the relevant items "d" with two dashes are not crossed whereas in error of commission (E2) happens when the irrelevant letters are crossed out. So the total errors (E) is the sum of (E1) and (E2).E= (E1+E2). There is another variable measuring the qualitative aspects of performance is the E %, it also represents the proportion of errors that are made in performance, the scores of E% will not have a normal distribution. Now comes to TN-E this means the total number of items scanned (E1+E2). Its measure the good quality of work completed after a single correction for errors. This TN-E measure of attentional and inhibitory control and the relationship of speed and accuracy of performance are also highly reliable and are normally distributed. Now in CP (Concentration Performance) is derived from the raw data of the correctly crossed out the relevant items, this new score of the total performance cannot be distorted by any tendencies as the haphazard skipping over of sections of the test lines or cannot cross out all the items with discriminating them. At last FR (Fluctuation rate) it literally means is the difference between the line with the maximum (Nmax) and the line the minimum numbers of items processed (Nmin), it also accessing the stability and consistency of performance across trails.

Second scale- MRS (Music Receptivity Scale) there are 35 emotions/ feeling listed in the cells below, show the scale in Appendix, in the questionnaire person may experience any numbers of emotions/feelings, while the participant listened to the given piece of music, go on, the whichever the participant experienced they have to enlist those emotions in the box, only the real experience which the participant felt during the given piece of music, for each emotion rate them on a scale of 1-5(Score 1 as lowest level of experience; score 5 as highest level), the participant have to give their rating within the brackets. While during the marking time they suppose not to think too much, their immediate responses will be the best, so at data extraction the data rating of those particular responses those rating in excel.

Third scale- IIM (Interest in Music Scale) here the participant have to list of attitudes and opinions that participant have on music, here the participant should not skip any items, there they five responses in each row are as follows- Strongly disagree as 1 counted as for data extraction, disagree as counted as 2, neither agree nor disagree as 3, agree denoted as 4, strongly agree denoted as 5, according the responses only those feeling it enlisted in numbers for data collection.

Forth scale- PANAS-SF (Positive and Negative Affect Schedule) here the participant have to give their real response to what they felt during the way listening to the music. Here for each emotion the participant has to mark the boxes like very slightly or not at all denotes 1 for data extraction, then a little denotes as 2, then moderately as 3, then quite a bit denotes as 4, at last extremely denotes as 5. These all numbers were enlisted as responses from the participant and put as data collection.

At last Fifth scale- MWS-5 (Mind Wandering Scale) in this questionnaire there are having 5 questions and they have to give the immediate responses what they really feel suppose in the first column- 1 denotes as almost never, 2 denotes as very infrequently, 3 denotes as somewhat frequently, 4 denotes as somewhat frequently, 5 denotes as very frequently, 6 denotes as almost always, according to the number of responses enlisted as data extraction for data analysis.

Table1: Pearson's correlation values of Music Receptivity Scale and other Scales (n=72)												
	IIMTot	MWTot	PANASNeg	PANASPos	MRS_Emo	MRS_Atten	MRS_Int	MRS_Semant	MRS_Hrdl	E	CP	FR
IIMTot	1											
MWTot	0.18	1										
PANASNeg	0.03	0.49	1									
PANASPos	0.06	-0.19	-0.02	1								
MRS_Emo	-0.11	0.13	0.18	-0.36	1							
MRS_Atten	0.04	0.34	0.29	-0.3	0.21	1						
MRS_Int	-0.02	0.16	0.07	-0.48	0.57	0.3	1					
MRS_Semant	-0.07	0.29	0.14	-0.47	0.61	0.28	0.65	1				
MRS_Hrdl	-0.07	0.32	0.33	-0.51	0.37	0.61	0.51	0.36	1			
D2 Test (E)	0.03	-0.02	0.1	0.07	-0.06	0.04	-0.06	-0.07	0.07	1		
D2 Test (CP)	0.03	0.07	0.03	-0.16	0.13	-0.14	0.05	0.11	0.05	-0.38	1	
D2 Test (FR)	-0.02	-0.17	-0.21	0.2	-0.17	-0.17	-0.09	-0.08	-0.17	0.27	-0.37	1

[IIM Tot – Interest in Music total value, MWTot- Mind Wandering Scale total value, PANAS – Positive and Negative Affect Schedule Pos-(positive) PANAS-Neg – (negative), MRS- Music Receptivity Scale Emo- Emotion, MRS Atten- Attention, MRS Int- Interest, MRS Semant, MRS Hrdl- Hurdle, E- Errors, CP- Concentration Performance, FR- Fluctuation Rate]

Table 2: p values of correlation test: Music Receptivity Scale and other Scales (df=70)												
	IIMTot	MWTot	PANASNeg	PANASPos	MRS_Emo	MRS_Atten	MRS_Int	MRS_Semant	MRS_Hrdl	E	CP	FR
IIMTot												
MWTot	0.14											
PANASNeg	0.78	<0.001***										
PANASPos	0.61	0.11	0.86									
MRS_Emo	0.37	0.29	0.13	<0.001***								
MRS_Atten	0.72	<0.001***	0.01**	0.01*	0.08							
MRS_Int	0.84	0.17	0.54	<0.001***	<0.001***	0.01**						
MRS_Semant	0.59	0.01**	0.24	<0.001***	<0.001***	0.02*	<0.001***					
MRS_Hrdl	0.57	0.01**	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***	<0.001***				
E	0.81	0.88	0.43	0.56	0.61	0.74	0.61	0.54	0.55			
CP	0.78	0.56	0.81	0.18	0.28	0.24	0.66	0.35	0.66	<0.001***		
FR	0.89	0.15	0.07	0.10	0.16	0.15	0.47	0.52	0.15	0.02*	<0.001***	

[IIM Tot – Interest in Music total value, MWTot- Mind Wandering Scale total value, PANAS – Positive and Negative Affect Schedule Pos- (positive) PANAS-Neg – (negative), MRS- Music Receptivity Scale Emo- Emotion, MRS Atten- Attention, MRS Int- Interest, MRS Semant, MRS Hrdl- Hurdle, E- Errors, CP- Concentration Performance, FR- Fluctuation Rate]

Here in Table 1: Pearson's correlation (r) value between IIMTot Vs MWTot is 0.18 which means it is the low correlation. For MWTot vs PANASNeg, the r is 0.49 which means it highly correlated. In PANASPos Vs PANASNeg the r is -0.02 which means it is not correlated at all. In PANASPos VS MRSEmo the r is -0.36 which is moderately and negatively correlated. In MRS Emo Vs MRS Atten the r is 0.21 which again is around low correlation. In MRS Aten Vs MRS Int the r is 0.3 which suggests moderate correlation. In MRS Int Vs MRS Semant the r is 0.65, which is high correlation, whereas in MRS Semant Vs MRS Hrdl the r is 0.36, which is again shows moderate correlation. In MRS Hrdl Vs d2 (E) test the r is 0.07 which is very low correlation. In E Vs d2 (CP) r is is -0.38 which is negative. In the last section CP Vs d2 (FR) the r is -0.37 which is also negatively correlated.

From the above set of correlations, as shown in the table 2 where the corresponding p values associated with the correlation values are presented. MWTot was significantly correlated with PANASNeg, MRS_Atten, MRS_Semant, MRS_Hrdl. PANASNeg was significantly correlated with MRS_Atten and MRS_Hrdl. PANASPos is significantly correlated with MRS_EMO, MRS_Int, MRS_Semant, and MRS_Hrdl. MRS_Emo again is significantly correlated with MRS_Int, MRS_Semant, and MRS_Hrdl. MRS_Atten is significantly correlated with MRS_Int, MRS_Semant, and MRS_Hrdl. MRS_Int was significantly correlated with MRS_Semant, and MRS_Hrdl. MRS_Semant is significantly correlated with MRS_Hrdl.

Reliability of scales

IIM (Interest in Music Scale)- 0.73

Coefficient alphas for the Interest in Music are 0.7 which means acceptable reliability.

MWS (Mind Wandering Scale)- 0.7

Alphas consistency for the Music Wandering scale is 0.7, these results indicate good internal consistency (i.e. that items within each instrument measure the same construct)

panas_neg (Positive and Negative Affect Schedule)- 0.75

Here also reliability panas neg shows 0.7 values which are acceptable reliability.

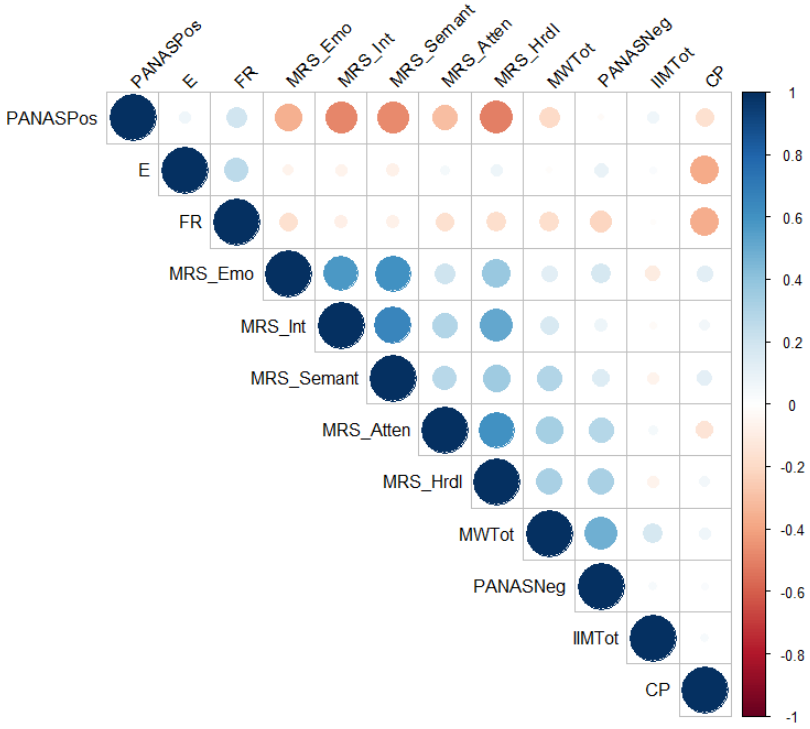
panas_pos(Positive and Negative Affect Schedule) - 0.84

Panas pos gives the coefficient alphas value of 0.8, which denotes good reliability.

MRS_Tot (Music Receptivity Scale) - 0.88

At the last MRS Tot scores shows 0.8 which means high reliability and they are reproducible, consistent and absolutely accurate.

Figure 1: p valve correlation coefficient between MRS with other scales



Positive and Negative correlations: Denotes Blue and **red in color. The color intensity and the size of the circle are related to the** strength of correlation between the scales.

Figure 1 depicts graphically the relationship between various variables.

CHAPTER 7

DISCUSSION

Highlights of Finding

The present study focuses on convergent and divergent validity of the MRS scale with other standard tools. Interest domain of MRS did not correlate as expected with the Interest in Music scale, this may indicate the concept "interest" measured by these two tools are quite different in their theoretical underpinning. MRS hurdle scale was positively correlated with the mind wandering scale, as expected. Emotion domain of MRS again did not correlate as expected with the PANAS scale and again we point out that the nature of emotion as measured by these two tools are little different. MRS attention was again not correlated with d2 scale of attention, this again is a contrary result. To add to this, MRS attention was positively correlated with hurdle, which again is elusive. MRS interest was positively correlated with semantics that was as expected in the theoretical framework. MRS hurdle was not found to be correlated with any of the d2 attention domains. Different measures of d2 measure of attention were found to be internally consistent. This suggest that MRS has shown mixed results of convergent and divergent validity. There were two sets of samples which contributed towards the total sample size, it may be useful to analyse the data in those group separately in order to find and different in correlation trend across the two measured groups.

Comparison with earlier findings

Earlier studies have shown that interest in music can be measured using Interest in Music (IIM) scale. This has two domains, musical activity and emotional engagement. Here the most important factor is music and this scale is highly significant with positive emotions. This positive aspects of health can be seen as having important moderating functions. Due to more influence of positivity it can reduce the negative effects which we used to hold in daily life stress situations (Gold et al., 2013). In another study, the convergent and divergent validity of Student Engagement in School Success Skills Survey (SESSS), measures with other scales like (MSLQ) Motivates Strategies for Learning Questionnaire, (SESRL) Self-Regulated Learning were found to be related. In this research study the SESSS with other scales had given good internal consistency, there is no overlapping of the various scales through the use of the method of convergent and divergent validity (Villares et al., 2014).

There was no scale found that directly conveyed the conceptual meaning attributed in MRS and we assume that receptivity in music is still a unique construct and in order to ascertain the validity, we need to do more repeatable study, perhaps in the music skilled population.

CHAPTER 8

APPRAISAL

Limitations of the study

- Medium sample size
- The short duration of the intervention

Strength of the Study

- This is only study which was done on seeing internalization of music using music receptivity scale in the yoga population
- This is a survey study on the yoga students
- All students were good listeners and supportive during the data collection process

Scope for the Future Work

- Bigger sample size can be considered for future work
- Intervention could have been longer
- This study can be conducted in music specialized population.

CHAPTER- 9

CONCLUSION

Music Receptive Scale has shown mixed results of convergent and divergent validity. Some of the domains of MRS were found to have good convergent and divergent validity whereas, a few others did not. It is difficult to assess the exact source of such variation and reproducing this study in a music skilled population can give us better insight about the nature of construct validity of music receptivity scale.

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APPENDIX-1

```
library(psych)
library(Hmisc)

mrs1<-MRS_FINAL[,c(17,23,34,35,94,95,96,97,98,102,105,106)]

cor(mrs1)


cor1 <- rcorr(as.matrix(mrs1))
cor1

iim<-MRS_FINAL[,c(5:16)]
psych::alpha(iim)

mws<-MRS_FINAL[,c(18:22)]
psych::alpha(mws)

panas_neg<-MRS_FINAL[,c(24,25,27,29,33)]
psych::alpha(panas_neg)

panas_pos<-MRS_FINAL[,c(26,28,30,31,32)]
psych::alpha(panas_pos)


mrsTot<-MRS_FINAL[,c(71:92)]
psych::alpha(mrsTot)

# Plot
library(corrplot)
mrs2<-as.matrix(mrs1)
corrplot(mrs2, type = "upper", order = "hclust",
        tl.col = "black", tl.srt = 45)
mean(MRS_FINAL$Age, na.rm = TRUE)
sd(MRS_FINAL$Age, na.rm = TRUE)
table(MRS_FINAL$Gender)
```

```
describeBy(MRS_FINAL$Age,MRS_FINAL$Gender)
cor(mrs2)
res <- cor(mrs2)
round(res, 2)
library(corrplot)
corrplot(res, type = "upper", order = "hclust",
        tl.col = "black", tl.srt = 45)
```

APPENDIX-2

Swami Vivekananda Yoga Anusandhana Samsthana,

S-VYASA Yoga University, Bangalore

Informed Consent Form

Study title: Convergent and divergent validity of Music Receptivity in Yoga Population.

Investigator: Monisha Mondal, MSc (Yoga Therapy), SVYASA Yoga University,

Bangalore; Email ID: monishamondal9751@gmail.com ; Mobile no: 9606152906

This study is to develop a tool to measure Music Receptivity of an individual to music. This is a study aimed at developing a feedback tool which would assist in therapeutic application of music. We will be using only self-report measures (questionnaires). You will be given a 13 minute long music piece to listen to and after which a questionnaire will be given to you which you may please fill out and give back 45 minutes of your time needs to be spent towards this study, and this is a single session, one time assessment.

No incentives will be provided for participating in this study. However, if you wish results of your test scores will be sent to you through e-mail. Your valuable participation would help us understand how human subjective experiences are in music listening.

No potential risks are anticipated by undergoing these tests. You are free to express any discomfort or problem during your test session to the test administrator. You are free to withdraw your participation at any point of the study without penalty.

This assessment session is coded. In demographic page, giving your name is optional. If you need your results, you may provide your e-mail ID. No other sensitive information is collected. All information obtained in this study is strictly confidential unless law requires disclosure.

Voluntary Consent

I agree that I have read this informed consent fully. I fully understand the contents of this document and am openly willing to consent to take part in this study. I am 18 years of age or older and am agreeing to participate in this study voluntarily. All the queries related to my participation were clarified to me and in case of any problem or further clarification I may contact the above-mentioned person.

Date:

Place: Bangalore

I agree I do not agree

Name and Signature of the participant:

APPENDIX-3

Name*(optional)*:

Age:

Gender:

Educational qualification(s):

Course undergoing currently:

Your interest in music:

a. Low b. Average c. High d. Very high

Do you wishfully listen to music daily? How long do you listen?

Choose one from the options below:

a. A few times in a week b. daily c. more than once daily b. d. Multiple times daily

Style(s)/Genre(s) of music that you prefer:

a. Classical music (Indian/European/any)

b. Rock/Pop music

c. Melody

d. Folk/Country music

Are you having any sort of hearing impairment/disability? Yes / No

Are you blind, or have any impairment to your vision, such as low vision?

>>Please specify?

Are you having any loco motor disability? *Yes / No*

Currently having any mental illness? *Yes / No*

Did you have any mental illness inside the last 10 years? *Yes / No*

Currently troubled by any ailments other than the ones mentioned? *Yes / No*

>>Please specify?

Are you going through a difficult phase in life? *Yes / No*

Email:

(If you want your test scores to be mailed to you):

2

MUSIC RECEPTIVITY SCALE

1. **There are 35 emotions / feelings listed in these CELLS below. Please go through each of them; You may have experienced many number of emotions / feelings given below, while you listened to the given music; go on, identify all those and rate them on a scale of 1-5 (Score 1 as lowest level of experience; score 5 as highest level). Give your rating within the brackets. *Please don't think much, your immediate response will be the best.***

Happiness ( )	Chills due to happiness ( )	Feeling pumped up / Energizing ( )	Emotionally uplifting ( )	Stress relieving/ Relaxing ( )
Inspiring ( )	Graceful / Blessed ( )	Requesting God for mercy / Repenting ( )	Accepting yourself ( )	Peaceful ( )
Calmness ( )	Pacifying / Soothing ( )	Love ( )	Parental Love/ Affection ( )	Romance ( )
Love towards God / Devotion / Surrender ( )	Hope /Positivity/ Optimism towards life ( )	Meditative/ Contemplative ( )	Reflections/ Flashback of your life events ( )	Interaction with / Presence of God/ The Divine ( )
Sadness ( )	Depressing ( )	Dislike ( )	Guilty ( )	Did not feel any particular

				emotion / feeling ( )
Mixed / Vague emotions / Feelings ( )	Fears going away ( )	Heroism / Brave / Courageous ( )	Enchanting / Put a spell on me ( )	Enigmatic / Mysterious ( )
Wonder / Fascination ( )	Eroticism ( )	Becoming one with the nature / Universe ( )	Transcending / involved deeply beyond senses ( )	Suffocating ( )

3

2. **The given music was not interesting to me.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

3. **I was comfortable with my posture while listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

4. **I was distracted due to daydreaming while listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

5. **The given music sounded boring to me**.

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

6. **It was difficult for me to be attentive while I was listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

4

7. **My intensity of focus was varying while listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

8. **I got emotionally triggered while listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

9. Although I wanted to be attentive on the whole, my attention was not up to the mark.

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

10. **Disturbing thoughts came into my mind while listening to the given music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

11. **The music brought back good memories.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

5

12. While listening to the given music, I was losing focus, going back and forth on daydreaming.

a. Strongly Agree
b. Agree
c. Neither Agree nor Disagree
d. Disagree
e. Strongly Disagree

13. **I would love to listen to this music again.**

a. Strongly Agree
b. Agree
c. Neither Agree nor Disagree
d. Disagree
e. Strongly Disagree

14. **I did not like the lyrics of the given music.**

a. Strongly Agree
b. Agree
c. Neither Agree nor Disagree
d. Disagree
e. Strongly Disagree

15. **The music took me to another world.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

16. **I associated disturbing / unpleasant memories or events with this music.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

6

17. **The music ‘moved me’ / ‘Touched my heart’.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

18**. The music played was loud for my ears.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

19. **The music evoked images and /or connected thoughts in my mind.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

20**. I understood the meaning of the lyrics well.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

21. **While listening to the music, I was imaginative / creative.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

7

22. While listening to the music, I was disturbed / distracted by external factors.

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

23. **The lyrics of the music 'moved me' / 'touched my heart'.**

a. Strongly Agree

b. Agree

c. Neither Agree nor Disagree

d. Disagree

e. Strongly Disagree

APPENDIX-4

Interest in Music Scale (IiM) - English Version

On this page you will find a list of attitudes and opinions that people can have about music. Please read each item carefully, and select the answer that best describes your attitude. Answer by setting a cross into the box of the answer that fits best for you. Please do not skip any items. If you change your mind, please erase your first answer completely.

		Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly agree
1	I like to make music alone	☐	☐	☐	☐	☐
2	I like to make music together with other people	☐	☐	☐	☐	☐
3	I like to listen to music alone	☐	☐	☐	☐	☐
4	I like to listen to music together with other people	☐	☐	☐	☐	☐
5	I like to go to concerts or other musical ´events`	☐	☐	☐	☐	☐
6	I get a feeling of joy and pleasure in making music	☐	☐	☐	☐	☐
7	I get a feeling of ´flow` in making music	☐	☐	☐	☐	☐
8	I use music to avoid contact with others	☐	☐	☐	☐	☐
9	I like to discuss music with other people	☐	☐	☐	☐	☐
10	I often listen to music so that I do not have to talk to others	☐	☐	☐	☐	☐
11	I like to read music magazines	☐	☐	☐	☐	☐
12	Music touches me deeply	☐	☐	☐	☐	☐

APPENDIX-5

Positive and Negative Affect Schedule (PANAS-SF)

Indicate the extent you have felt this way over the past week.		Very slightly or not at all	A little	Moderately	Quite a bit	Extremely
PANAS 1	Upset	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 2	Hostile	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 3	Alert	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 4	Ashamed	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 5	Inspired	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 6	Nervous	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

PANAS 7	Determined	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 8	Attentive	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 9	Active	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5
PANAS 10	Afraid	☐ 1	☐ 2	☐ 3	☐ 4	☐ 5

Scoring:

Positive Affect Score:

Add the scores on items 1, 3, 5, 9, 10, 12, 14, 16, 17, and 19. Scores can range from 10 – 50, with higher scores representing higher levels of positive affect. Mean Scores: 33.3 (SD±7.2)

Negative Affect Score:

Add the scores on items 2, 4, 6, 7, 8, 11, 13, 15, 18, and 20. Scores can range from 10 – 50, with lower scores representing lower levels of negative affect. Mean Score: 17.4 (SD ± 6.2)

Your scores on the PANAS: Positive: ____ Negative: ____

Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: the PANAS scales. Journal of personality and social psychology, 54(6), 1063.

APPENDIX-6

Mind-Wandering Scale

Response options were designated along a 6-point Likert scale.

S. No.	Questions	1-almost never	2 – very infrequently	3 - somewhat infrequently	4 - somewhat frequently	5 - very frequently	6 - almost always
1	I have difficulty maintaining focus on simple or repetitive work						
2	While reading, I find I haven't been thinking about the text and must therefore read it again						
3	I do things without paying full attention						
4	I find myself listening with one ear, thinking about something else at the same time						
5	I mind-wander during lectures of presentations						

APPENDIX-7

Name(d2 Test)	Gender	Age	TN	CP	PANASNeg	PANASPos	MWTot	IIMTot	MRSTot
Abhishek Yadev	male	24	615	239	7	22	9	42	40
Aishwarya Tingar	female	33	502	188	5	15	18	33	59
Aiswarya Krishna V	female	23	569	202	5	17	14	50	63
Ajay Nama	male	23	613	227	15	23	19	38	54
Alexander Munt	male	24	584	197	8	9	21	39	60
Anant Gopal	male	22	627	209	5	17	5	41	49
Ankit Khatri	male	26	598	242	15	15	25	36	66
Anubha Saini	female	21	478	191	5	18	11	43	41
Anushka. P. Nair	female	21	512	144	9	21	20	44	59
Anusree.P.V.	male	26	428	150	7	16	14	47	49
Arun .R.S	male	26	505	145	5	25	10	51	38
Arvind	male	29	501	165	7	19	9	36	37
Ashika	female	21	450	158	4	23	7	43	66
Bishnu Priya	female	29	582	153	9	25	18	46	40
Chaitanya	male	21	609	167	5	13	11	53	53
Devika .P. Nair	female	25	477	186	13	25	19	41	34
Dr Anuradha Sag	female	23	618	231	5	19	8	43	34
Navya.P.P.	female	26	566	147	5	19	8	39	43
Dr. Rachana Poudel	female	28	550	165	5	18	13	36	57
G.Dinesh	male	24	573	201	5	11	7	42	62
kaviyarasan G	male	23	578	172	10	17	14	37	46
Ganesh Baghel	male	23	640	225	7	24	13	24	46
Indu Sheerkand	female	23	555	110	7	16	9	33	61
Jagjeet Singh	male	28	638	186	7	20	13	40	53

Kamal	male	21	652	251	23	18	14	49	73
Krishna Bharadwaj N	male	22	498	200	8	7	19	38	72
Krupa Thakkar	female	28	494	198	8	6	15	47	76
Kruthika. R	female	24	537	159	7	20	20	46	55
Lakshmi Suvendvan	female	21	618	197	5	14	20	41	44
M.V. Srividya	female	21	494	192	5	12	12	43	57
Manju .N.	feamle	23	590	187	9	21	18	51	41
Mayuri Doohia	female	54	407	148	5	25	10	30	42
Megha Choudhary	female	22	512	160	5	12	12	49	54
N.Vanitha	female	41	424	164	6	16	11	44	53
N. Subhashri	female	23	558	208	5	18	8	24	46
Nandhini K.S	female	25	525	219	5	23	14	46	66
Neeraj	male	26	653	277	4	8	8	38	36
P.Jhansi	female	20	472	177	5	22	10	32	46
Pinky Sharma	female	22	486	172	9	18	23	43	59
Pooja Singh	female	21	239	79	5	22	6	32	45
Pooja Verma	female	24	563	220	5	17	14	37	52
Pragati Kumari	female	19	619	187	5	22	13	40	36
Prakash.S	male	22	615	122	8	19	11	37	52
Prashant Sharma	male	26	618	157	6	16	9	37	64
Prashanth.C.Anand	male	40	423	146	5	24	8	42	27
Prity Prajapati	female	23	371	92	7	15	17	50	49
Priyanka Saddalgi	female	25	630	194	5	18	7	38	44
Purusothaman	male	42	634	270	5	20	14	47	54
Rachna Raj	female	25	446	170	10	20	18	40	43
Rekha	female	25	522	146	14	25	22	49	44
Rishu	female	23	509	188	6	19	12	40	45
Riyana Sreedharan	female	23	573	199	4	14	24	47	52

Rooba Ganesan	female	21	645	215	6	20	19	42	54
S.Karthikeyam	male	50	441	161	8	17	8	33	60
Sabastien Baabu	male	26	508	184	10	8	25	35	78
Sakshi Vashishtha	female	21	506	157	7	18	13	37	53
G.Solophin Sharma	male	24	366	128	5	20	15	48	55
Sandesh	male	32	422	145	9	16	16	33	76
Sangeeta Sil	female	38	571	215	5	25	15	54	30
Soniya Tiwari	female	42	610	226	5	16	7	44	51
Shashank Ramade	male	23	313	89	5	25	5	38	30
Shivam	male	22	597	226	6	14	13	44	85
Shubhi Taneja	female	24	576	232	5	19	10	47	31
Sreesha Sajeevan	female	26	557	203	7	20	10	23	45
Srihari Maiti	male	23	568	222	5	23	8	52	43
Sruthi.P	female	26	545	174	6	17	10	41	54
Sujit N.Nair	male	47	513	191	5	25	6	45	35
Swati Singh	female	22	615	231	5	24	17	46	33
Thejaswi.J	female	23	536	197	5	18	13	42	32
Vandana	female	22	518	121	14	11	17	44	48
Vidya Shetty	female	35	570	113	9	25	16	51	56
Vinay.Anant.Hegde	male	19	465	170	5	24	8	42	27