

**DEVELOPMENT OF YAMA NIYAMA SCALE TO MEASURE THE
PERSONALITY TRAITS- HRĪ AND SAMTOṢA**

Dissertation submitted by

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Towards the partial fulfilment of

MASTER OF SCIENCE IN YOGA THERAPY

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CERTIFICATE

This is to certify that **MRIDANI ADIGA** who has got MSc registration with start from 1st August 2019 by **Swami Vivekananda Yoga Anusandhana Samsthana**, deemed to be university, has successfully completed the required training in acquiring the relevant background knowledge in Yoga Therapy and has completed the M.Sc course in 2 years to submit the research project entitled **“DEVELOPMENT OF YAMA NIYAMA SCALE TO MEASURE THE PERSONALITY TRAITS- HRĪ AND SAMTOṢA”**.

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Date: 12th June 2021

Place: Bengaluru

DECLARATION

I hereby declare that the dissertation titled “Development of *Yama Niyama* scale to measure the personality traits- *hrī* and *samtoṣa*” has been carried out by me under the guidance of Dr.Rajesh S.K and Dr.Judu Ilavarasu. I declare that no part of this work has been previously presented for another degree, diploma or any other similar titles in this or any other institution.

Mridani Adiga

Date: 12th June 2021

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Mridani Adiga

Date: 12th June 2021

STANDARD TRANSLITERATION CODE USED TO TRANSLITERATE SANSKRIT WORDS

a	=	अ	ña	=	ढ	pa	=	प
ā	=	आ	ca	=	च	pha	=	फ
i	=	इ	cha	=	छ	ba	=	ब
ī	=	ई	ja	=	ज	bha	=	भ
u	=	उ	jha	=	झ	ma	=	म
ū	=	ऊ	ñ	=	ञ	ya	=	य
ṛ	=	ऋ	ṭa	=	ट	ra	=	र
ṝ	=	ऌ	ṭha	=	ठ	la	=	ल
e	=	ए	ḍa	=	ड	va	=	व
ai	=	ऐ	ḍha	=	ढ	śa	=	श
o	=	ओ	ṇa	=	ण	ṣa	=	ष
au	=	औ	ta	=	त	sa	=	स
m̐	=	अं	tha	=	थ	ha	=	ह
ḥ	=	अः	da	=	द	kṣa	=	क्ष
ka	=	क	dha	=	घ	tra	=	त्र
kha	=	ख	na	=	न	jña	=	ज्ञ
ga	=	ग						
gha	=	घ						

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Abstract

Background: The *Yama Niyama* scale is a tool to measure values/ morals such as humility/ modesty and contentment. Understanding and introspecting such qualities in ourselves will help in leading a better quality of life in harmony with the society and people around us.

Aim: The aim of the study is to Develop a scale to measure the qualitative concepts- *Yama and Niyama*, specifically the two *Niyamas: Hrī* (Modesty) and *Samtoṣa* (Contentment).

Methodology: A questionnaire was developed to measure the concepts, using both qualitative and quantitative methods. The questionnaire was circulated in different platforms using a google form and data was collected, analysed and interpreted using Excel and JASP. There was no intervention in the study.

Result: Exploratory Factor analysis was used to determine the factor structure and two factors were extracted by the analysis. The internal reliability (Cronbach's alpha) of the modesty scale was 0.650 and the contentment scale was 0.733. The pilot study found that there is an element of social desirability bias which needs to be eliminated with further modification and alteration of the scale.

Conclusion: Through the pilot study, we found that modesty and contentment can be quantified and measured through the yogic context and, that they are connected to the present times. The scale can be used to assess and identify personality traits of an individual. It can be used specifically in school and work setups to identify, assess and appraise positive human values.

Chapter 1

Introduction

Yoga is a *Sanskrit* word that means to join or union (union between Individual soul and supreme soul). Yoga is a spiritual process, developed in the eastern tradition. Yoga is a traditional practice for achieving self-realization, but in recent years, significant value is being given to the effects of yoga practices on physiological and biological health (Varambally & Gangadhar, 2012). Yoga is an art of holistic living and not just a combination of *Āsana* and *Prāṇāyāma*. For the westerners, Yoga is a kind of mind-body technique where meditation reflects stable seated practices and yoga reflects practices that include movement and involvement of the physical body (Chaoul & Cohen, 2010). Yoga, in reality, is a vast combination of psychological, physical, and spiritual science which gives holistic development of the human body, mind and soul (Bhobe, 2000). The science and practices were clearly described by *Patañjali* in ancient text *Patañjali Yoga Sūtra*. Yoga, according to sage *Patañjali*, involves eight limbs namely *Yama* (abstinences), *Niyama* (observances), *Āsana* (physical postures), *Prāṇāyāma* (breath regulation), *Pratyāhāra* (withdrawal of the senses), *Dhāraṇa* (concentration), *Dhyāna* (meditation) and *Samādhi* (absorption) (Taneja, 2014).

1.2 INTRODUCTION TO YAMA AND NIYAMA

As discussed earlier, Yoga is a comprehensive system for wellbeing which is more than just *Āsana* (physical postures). *Yamas* (abstinences) & *Niyamas* (observances) are foundational concepts in the science of Yoga. The *Yamas* and *Niyamas* are the first two limbs of the *aṣṭāṅga Yoga* (described in *Patañjali Yoga Sūtra*) and very important aspects in *haṭha Yoga Pradīpika*. The *Yamas* & *Niyamas* are the primary steps towards self-realization. The *Yamas* & *Niyamas* are related to behaviour towards the outside world and ourselves. Incorporating these principles

into life can have a profound effect on the practice of Yoga and the peace of mind. The *Yamas* focus on the behaviour and thinking towards the outside world. The *Niyamas* are principles that focus on how one should behave within oneself. Both *Yama* and *Niyama* give strength necessary to progress along the path towards inner peace, contentment and enlightenment. *Patañjali Yoga Sūtra* describes 5 *Yamas* and 5 *Niyamas* (Taimni, 2010). Whereas *haṭha Yoga Pradīpika* presents 10 *Yamas* and 10 *Niyamas* (Muktibodhananda, 2012).

1.3 YAMA AND NIYAMA ACCORDING TO SAGE PATAÑJALI

The *Patañjali Yoga* also known as *Rāja yoga* or *Aṣṭāṅga Yoga* focuses on the path of psychological exploration. The eight limbs (*Aṣṭāṅga*) of the system show the path towards human liberation (Dylan & Muncaster, 2021). The *Yama* and *Niyama* are the first and second limbs of *Patañjali Yoga Sūtra*. As discussed earlier, *Yamas* are restrictive principles which are to be followed to remain in harmony with society and the environment. The 5 components of *Yamas* are non-violence (*Ahimsā*), truthfulness (*Satya*), non-stealing (*Asteya*), continence (*Brahmacarya*) and non-possessiveness (*Aparigraha*). *Niyamas* are those principles of right behaviour, which should be adopted. The *Niyamas* described in the *Yoga Sūtra* are purity of body and mind (*Śauca*), contentment in all circumstances (*Santosa*), austerity (*Tapah*), self-study (*Svādhyāya*) and surrender to God (*Īśvarapraṇidhāna*) (Taimni, 2010).

1.3.1 Five Yamas Described in Patañjali Yoga Sūtra

- 1) **Ahimsā (Non-Violence):** Minimizing the amount of harm we are causing to ourselves and others in thought, word and deed, by becoming aware of the ways in which we may bring suffering to others.
- 2) **Satya (Truthfulness):** *Satya* includes right speech, truthful communication as well as skilful listening. When truly practicing *Satya*, one's words and deeds are in alignment with one another.

- 3) ***Asteya (Non-stealing)***: One should not take anything which doesn't belong to them or anything which they haven't earned. *Asteya* applies to material things, as well as respecting others' time, energy and hard work.
- 4) ***Brahmacarya (Continence)***: The yogic concept discourages overindulgence in many things, including food and sex. Obsession with things may cause someone to lose truly important things in life. The *Brahmacarya* is often described as moderation, specifically sensual.
- 5) ***Aparigraha (non- possessiveness)***: One should not take so much that others don't have enough. One should not be attached to his/her possessions. One should not become over-attached with anything.

1.3.2 Five *Niyamas* Described in Patañjali Yoga Sūtra

- 1) ***Śauca (Cleanliness)***: According to Patañjali, this term refers to cleanliness at the physical, environmental and mental levels. It can be practiced by keeping a clean environment and living space, a clean body through a clean diet, good hygiene and a clean mind with the quality of the information.
- 2) ***Samtoṣa (Contentment)***: One should be satisfied and happy with their life and situations. Rather than wishing for things to be different, one should accept and appreciate the reality of life. *Samtoṣa* also means being at the present moment.
- 3) ***Tapah (Austerity)***: One should transform through the fire (difficulties) of positive actions. The term *Tapah* means "heat" and it refers to the discomfort which comes with breaking habitual thought and behavioural patterns to bring positive transformation in your life.
- 4) ***Svādhyāya (Self Study)***: One should become self-aware. *Svādhyāya* means to be aware of their actions and reflect on them later. This introspection should be channelled to

bring positive change in the future. Studying of yoga texts and scriptures is also said to be a form of *Svādhyāya*.

- 5) **Īśvarapraṇidhāna (Surrender to God):** One should surrender himself/herself to something higher than him/her. This is the surrender of the individual self to the higher self. *Īśvarapraṇidhāna* also means letting go of doubt and making space for faith.

1.4 YAMA AND NIYAMA ACCORDING TO HAṬHA YOGA PRADĪPIKA

The *Haṭha Yoga Pradīpika* is one of the primary ancient texts on *haṭha* yoga. This text is said to be composed in the 15th century CE by *Swami Swatamarama*. The primary goal of this text is to facilitate the physical disciplines and practices of *Haṭha Yoga* and integrate these with the higher spiritual goals of *Rāja yoga*. *Swami Swatamarama* mentioned that *Haṭha Yoga* is a preliminary practice for *Rāja yoga*. He said that obtaining self-control and self-discipline is much easier when we start with the physical body, versus trying to directly control the mind as in *Rāja yoga*. *Haṭha Yoga Pradīpika* presents 10 *Yamas* and 10 *Niyamas* (Muktibodhananda, 2012).

1.4.1 Ten *Yamas* mentioned in *Haṭha Yoga Pradīpika*

- 1) ***Ahimsā*:** Non-violence
- 2) ***Satya*:** Truthfulness
- 3) ***Asteya*:** Non-stealing
- 4) ***Brahmacarya*:** Continence/ Celibacy
- 5) ***Kṣamā*:** Forgiveness
- 6) ***Dhṛti*:** Endurance
- 7) ***Dayā*:** Compassion
- 8) ***Ārjava*:** Humility
- 9) ***Mithāhāra*:** Moderate diet
- 10) ***Śauca*:** Cleanliness

1.4.2 Ten *Niyamas* Mentioned in *Haṭha Yoga Pradīpika*

- 1) *Tapah:* Austerity
- 2) *Samtoṣa:* Contentment
- 3) *Āstikya:* Belief in the God
- 4) *Dānam:* Charity
- 5) *Īśvarapūjanam:* Worship of God
- 6) *Siddhanta vākya śravanam:* Listening to the recitations of sacred scriptures
- 7) *Hrī:* modesty
- 8) *Mati:* Discerning intellect
- 9) *Japa:* Mantra repetition
- 10) *Hutam:* Sacrifice

1.5 THE TWO NIYAMAS: HRĪ AND SAMTOṢA

Hrī means modesty. It is stated in many ancient texts: *Haṭha yoga Pradīpika*, *Śāṅḍilya upaniṣat*, *Varāha upaniṣat*, *Trīśikhabrāhmaṇa upaniṣat* to name a few. The various interpretations of the term *hrī* are- Modesty, Humility, humbleness, retention of knowledge, remorse (when one goes against the path of *dharma*), memory, divine awareness, surrender of ‘I-ness’ or ego, simplicity of character and lifestyle (Veylanswami, 2003) (Muktibodhananda, 2012). Modesty in the present times is sometimes mistaken as weakness or failure, but we should understand that it takes more courage to accept one’s fault and correct themselves or surrender one’s ego before another being.

Samtoṣa is understood as contentment or happiness. *Samtoṣa* is mentioned in almost all philosophical texts and scriptures- *Patañjali Yoga Sūtras*, *Haṭha Yoga Pradīpika*, *Shandilya Upanishad*, *Varāha upaniṣat*, *Trīśikhibrahman Upanishad* to name a few. It is one of the important *Niyama*. Although it sounds simple in theory, it is not easy to practice in the contemporary world. *Samtoṣa* can have different interpretations: being content with what you

have, finding joy in the smaller things in life, staying neutral in difficult situations, uplifting others with a smile, identifying with the inner self, gratitude towards your life, health, people and possessions, not comparing yourself or your possessions with others and having a positive outlook towards life. We always tend to see what we do not have and constantly want more; this attitude creates disappointment and eventually results in a lower quality of life. Therefore, practicing *Samtoṣa* in everyday life is very important to live a content and a peaceful life, especially in the present circumstances. It is said that the practice of true contentment results in unparalleled happiness (Saraswati, 2013).

1.6 POSITIVE EFFECTS OF YAMA AND NIYAMA

Yamas and *Niyamas* guide the Yoga practitioner to remain persistent in his/her path. *Yamas* and *Niyamas* are the foundations of yoga. Practise of *Āsanas* without following *Yama* and *Niyama* is simply exercising. *Yama* and *Niyama* help to attain a state of balance during the spiritual journey. Studies have demonstrated several health benefits of practicing the *Yamas* and *Niyamas*. *Yama*, *Niyama*, *Āsana*, *Prāṇāyāma* and meditation showed improvements in quality of life and reduction in stress levels in the patients with coronary bypass surgery (Amaravathi et al., 2018). *Yamas* and *Niyamas* were beneficial for stress reduction and psychological well-being in college students. The *Yama* and *Niyama* intervention could add to complementary medicine to release the burden of insufficient resource of outpatient mental health treatment (Xu, Kumar, & Srinivasan, 2021). The *Yamas* and *Niyamas* also improved spiritual well-being. *Yama* and *Niyama* cultivate right attitude and behaviour and strengthens the other steps of yoga practices to attain harmony and freedom (Xu, Itagi, & Thaiyar, 2021).

Chapter 2

Literature Review

2.1 REVIEW OF ANCIENT LITERATURE:

Patañjali Yoga Sūtras

शौचसंतोषतपःस्वाध्यायेश्वरप्रणिधानानि नियमाः। प यो सु २-३२

śaucasaṁtoṣatapaḥsvādhyāyēśvarapraṇidhānāni niyamāḥ|

(Chapter 2, verse 32)

Cleanliness, contentment, austerity, self-study and surrender constitute fixed observances (Saraswati, 2013).

Hatha yoga Pradīpika

तपःसंतोष आस्तिक्यं दानमीश्वरपूजनम्।
सिद्धान्तवाक्यश्रवणं ह्रीमती च तपोहुतम्।
नियमा दश संप्रोक्ता योगशस्त्रविशारदैः ॥ ह यो प्र २-१६

*tapasaṁtoṣa āstikyaṁ dānamīśvarapūjanam|
siddhāntavākyaśravaṇaṁ hrīmatī ca tapohutam|
niyamā daśa saṁproktā yogaśastraviśāradaīḥ |*

(Chapter 1, verse 16)

Penance (austerity), contentment, belief (faith) in God, charity, worship of God, listening to the recitations of sacred scriptures, modesty, a discerning intellect, japa (mantra repetition) and sacrifice are the ten observances (*Niyama*) (Muktibodhananda, 2012).

Shandilya Upanishad

तपः संतोषास्तिक्यदानेश्वरपूजनसिद्धान्तश्रवणह्रीमतिजपव्रतानि दश नियमाः। प्रथम खण्डः

*tapah saṁtoṣāstikyadāneśvarapūjanasiddhāntaśravaṇahrīmatijapavratāni daśa niyamāḥ/
prathama khaṇḍaḥ*

(Shandilya Upanishad, Chapter 1)

Under *Niyama* (religious observances), are ten, viz., *Tapah* (Penance), *Samtoṣa* (Contentment), *Āstikya* (Faith in scriptures), *Dānam* (Charity), *Ishvarapujana* (God Worship), *Siddhanta-Sravaṇa* (Studying the scriptures), *Hrī* (Modesty), *Mati*, *Japa* and *Vrata* (Sanskrit Documents, 2021).

Trīśikhabrāhmana Upanisad

तपःसन्तुष्टिरास्तिक्यं दानमाराधनं हरेः ॥ वेदान्तश्रवणं चैव हीर्मतिश्च जपो व्रतम् ॥ इति ।

*tapahsantuṣṭirāstikyam dānamārādhanam hareḥ||vedāntaśravaṇam caiva hrīrmatiśca japo
vratam|iti/*

(Chapter 1, verse 33)

Penance, contentment, belief in the supreme, munificence, worship of vishnu, the study of *vedanta*, modesty, determination, *japa* (silent prayer) and austerity are the ten *Niyamas* (Sanskrit Documents, 2021).

Varāha Upanisad

**तपःसंतोषमास्तिक्यं दानमीश्वरपूजनम् । सिद्धन्तश्रवणं चैव हीर्मतिश्च जपो व्रतम् ।
एते हि नियमाः प्रोक्ता दशधैव महामते ॥**

*tapahsaṁtoṣamāstikyam dānamīśvarapūjanam| siddhantaśravaṇam caiva hrīrmatiśca japo
vratam|ete hi niyamāḥ proktā daśadhaiva mahāmate||*

(Varaha Upanishad, Chapter 5)

Penance, rejoice, faith in scriptures, Charity, God worship, Study of Vedanta and listening to scriptures, Modesty, Adhearance to scriptures, chanting (*Japa*) and commitment(*Vrata*) are the ten *Niyamas* (Classicyoga, 2019).

2.2 REVIEW OF SCIENTIFIC LITERATURE:

Author and year	Sample	Result	Conclusion
Mahima Raina, & Kamlesh Singh. (2015)	550 students (367 males and 183 females)	Overall reliability of the scale was found to be excellent ($\alpha = 0.88$), and the criterion-related validity was satisfactory as correlations were found to be 0.46 and 0.48 ($p < 0.01$) for Flourishing and SPANE-P, respectively, and -0.22 ($p < 0.01$) for SPANE-N.	The <i>Aṣṭāṅga</i> Yoga Scale has good psychometric properties ($\alpha = 0.88$), and the overall scale shows fair degree of correlations with the validating scales which indicates acceptable criterion-related validity of the overall measure of Yoga.
Sadhana Dadhore, Paran Gowada (2019)	1,153 students aged 11-18 years	The Yoga Self Restraint Scale got Cronbach's alpha of 0.74, variance 58.46%. YSRS results were found to be significant at $p < 0.001$	A yoga Self-restraint scale is described to measure social health and analyze its relation with five self-restraints; non-injury, truthfulness, abstention from stealing, living with awareness of the highest reality, and non-possessiveness. This yoga instrument can facilitate and provide a social health care and wellbeing: self-esteem, interpersonal skills, healthy behaviors, educational attainment.

Chapter 3

Aim and Objectives

3.1 AIMS OF THE STUDY:

Development of a scale to measure the qualitative concepts- *Yama and Niyama*, specifically the two *Niyamas: Hrī* (Modesty) and *Samtoṣa* (Contentment)

3.2 OBJECTIVES OF THE STUDY:

To analyze and measure the yogic concepts- *Hrī* and *Samtoṣa*. To be able to quantify and measure the personality traits modesty and contentment through the yogic approach in the present circumstances.

3.3 RESEARCH QUESTION

Is it possible to develop questionnaire to quantify and measure the level of *Hrī* (modesty) and *Samtoṣa*(contentment) in an individual?

Chapter 4

Methodology

4.1 MIXED STUDY DESIGN:

A mixed study design (qualitative and quantitative) was used as the constructs are subjective as well as quantitative in nature. Through the process of generating items and refining the construct, we had in-depth discussions among our group and included items that fit the operational definitions and those which felt relevant to the present context. After the first draft, we had a thorough discussion with our professor/ guide who is an expert in the field. During this discussion which lasted for about 3hours, each item was scrutinized and changes were made wherever necessary. The initial draft included more than 20 sub-domains under *Yama and Niyama*, which was later reduced to 17 sub-domains. Some of them removed due to the irrelevance in current times, some merged due to the similarity and overlapping nature of the construct and one construct added to the list. After the changes were implemented, all the items were once again critically examined and checked for face validity.

4.2 TESTING OF THE INSTRUMENT:

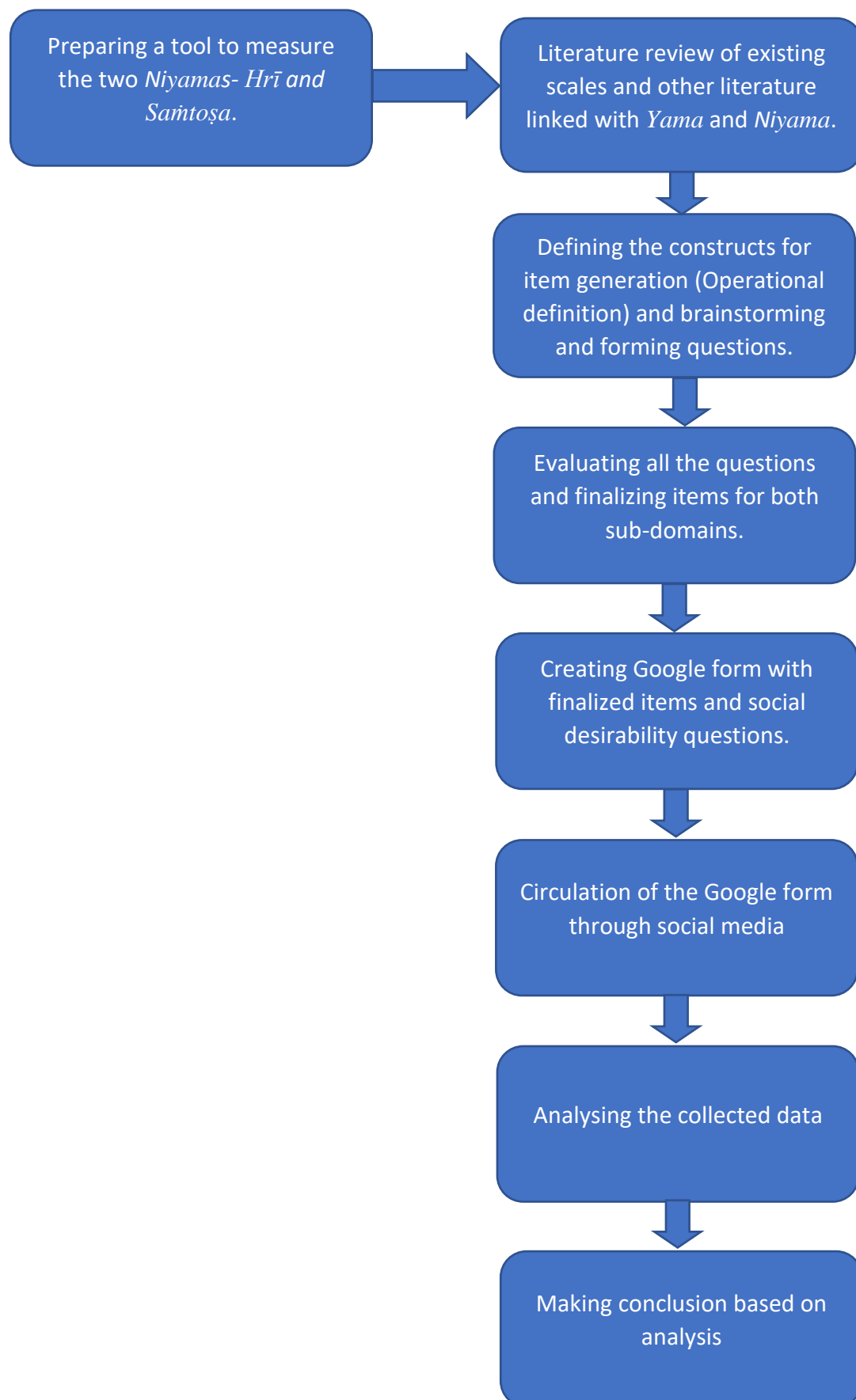
Due to the large size of the instrument when all of them were grouped together, the 17 sub-domains were divided among the group and each individual was assigned 2 sub-domains for a pilot study. Questionnaires were prepared using google forms. The pattern of the questionnaire was similar for all with a uniform response pattern of very often to never. The participant was asked for consent before filling the form, the initial instructions given before filling the form were as follows- “The following questions assess certain aspects of your personality. Please respond to the question in the best way that represents your natural response. There is no right

or wrong answer, so please respond based on what spontaneously appears to your mind, on a five-point Likert scale of Never, Rarely, Sometimes, Frequently, very often”. The constructs or traits were not specified in the scale as it might cause response bias. The first section included demographic details after which the specific items related to the *Yama or Niyama* was to be answered.

Pilot Study- Hrī and Saṁtoṣa

A pilot study was conducted (n=166; 84 males and 93 females) where the form was circulated to people across different places within and outside of India. This scale had 15 items which help evaluate the qualities *Hrī* and *Saṁtoṣa* along with the 13 social desirability items. More than 50 percent of the sample population belonged to the age group 18-30. Participants were requested to email if they had any queries. The pilot data will be analyzed used to refine the tool further.

4.3 STUDY DESIGN



4.4 PARTICIPANTS

SAMPLE SIZE: 166 (Male- 84, Female- 93)

Sample Characteristics: 57.6% of the sample population was aged between 18 and 30. 52.5% belonged to the male category and 47.5 was female. 61% of the sample population were not yoga practitioners.

4.4.1 SELECTION AND SOURCE OF PARTICIPANTS

Convenience and Snowball sampling was used

Anyone who was willing to fill up the questionnaire and was above the age of 18 was a part of the sample population. The form was circulated through social media and other applications to several people (family, relatives, friend groups, mutual friends, extended family and general public).

4.5 INCLUSION CRITERIA

- Individuals above the age of 18
- Yoga and non-yoga practitioners
- Male and female
- People with access to internet and smartphone.
- Those who can understand English Language

4.6 EXCLUSION CRITERIA

- Below 18yrs
- people suffering from any chronic illness

4.7 ETHICAL CONSIDERATION

An informed consent was presented to people in the Google form detailing about confidentiality of the information, explaining about the details of the study and digital approval was taken from each participant.

4.8 VARIABLES STUDIED

There are two variables studied in this scale, both of them are categorized under *Niyama*. The two sub-domains are: *Hrī* (Modesty) and *Samtoṣa* (Contentment).

Chapter 5

Data Extraction and Analysis

5.1 DATA SCREENING AND EXTRACTION:

A pilot study was conducted (n=177) where the data was first extracted to an excel sheet and checked for duplicates or missing values. It led to the removal of 11 duplicate values. The final sample size for the pilot study was 166. Nine items were reverse scored. The software used for the analysis was JASP, version 13.1.0.

5.2 ITEM GENERATION:

Items were generated based on operational definitions based on ancient texts, discussion with my research group and guide. Initially the two sub-domains (*Hrī* and *Samtoṣa*) had eight and nine questions respectively which was later consolidated to eight and seven items. The survey finally consisted of fifteen items related to the two sub-domains. The items were designed integrating the philosophical and the practical aspect of these concepts. The fifteen items had responses based on a five-point Likert Scale, Very Often to Never. A higher score indicated a higher percentage of the respective personality trait.

Chapter 6

Results

HRİ(Modesty) and *SAMTOŞA*(Contentment)

Kaiser-Meyer-Olkin Test

	MSA
Overall MSA	0.772
Q5	0.777
Q8	0.701
Q1_R	0.765
Q2_R	0.820
Q3_R	0.746
Q4_R	0.799
Q6_R	0.765
Q7_R	0.765
Q9	0.788
Q10	0.733
Q12	0.759
Q13	0.849
Q14_R	0.813
Q15_R	0.758
Q11_R	0.718

Bartlett's Test

X²	Df	p value
663.097	105.000	<.001

Chi-Squared Test

	Value	Df	p value
Model	184.084	76	<.001

Factor Loadings

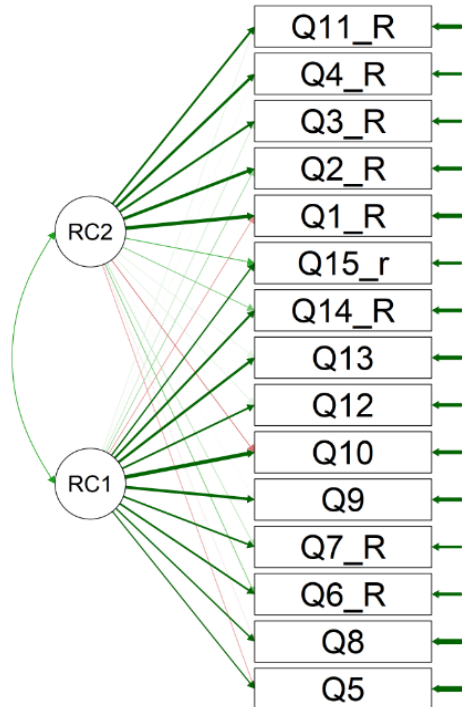
	Factor 1	Factor 2	Communality
Q5	0.440		0.180
Q8	0.460		0.204
Q1_R		0.649	0.389
Q2_R		0.603	0.442
Q3_R		0.531	0.311
Q4_R		0.569	0.327
Q6_R	0.495		0.352
Q7_R	0.490		0.281
Q9	0.584		0.339
Q10	0.673		0.420
Q12	0.496		0.260
Q13	0.552		0.319
Q14_R	0.522		0.387
Q15_R	0.457		0.398
Q11_R		0.514	0.278

Note: Applied rotation method is oblimin

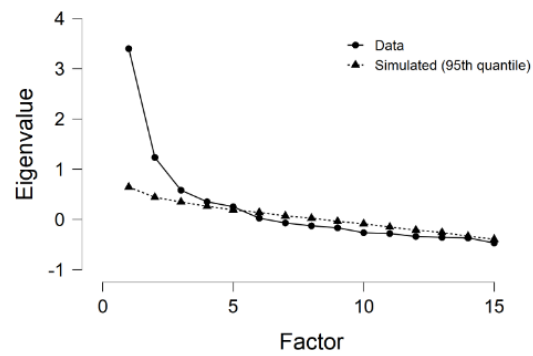
Factor Characteristics

	Sum Sq. Loadings	Proportion Var.	Cumulative
Factor 1	2.858	0.191	0.191
Factor 2	2.027	0.135	0.326

Path Diagram



Scree plot



Note: All items marked “_R” are reverse scored

6.1 FACTOR ANALYSIS:

Exploratory Factor Analysis was used to determine the factor structure. The number of factors were determined through parallel analysis by the software. Two factors were extracted and the rotation method applied was oblimin. The exploratory factor analysis was based on the correlation matrix.

Factor Analysis of Pilot Data (n=166)

Exploratory Factor analysis was performed to determine the structure and nature of the tool. The items were coded as follows- Never (1), Rarely (2), Sometimes (3), Frequently (4), Very Often (5), 9 items were reverse scored. The analysis extracted two factors as per our initial theoretical structure. Bartlett’s test of Sphericity was performed to check the suitability to

perform EFA, the result of the test was statistically significant ($p < 0.001$) showing the analysis can be done. The Keyser-Meyer-Olkin (KMO) test which is also an assumption check to test sampling adequacy was done which showed all values to be above 0.70, the values ranged between 0.701 and 0.849. Overall Mean Sampling adequacy (MSA) was 0.772 for factor 1 and factor 2. All the values were above the recommended value of 0.60. Pilot data will be used for further refinement of the scale.

6.2 RELIABILITY:

Hrī (Modesty)

	Cronbach's
Point Estimate	0.650

Sāntoṣa (Contentment)

	Cronbach's
Point Estimate	0.733

Social Desirability

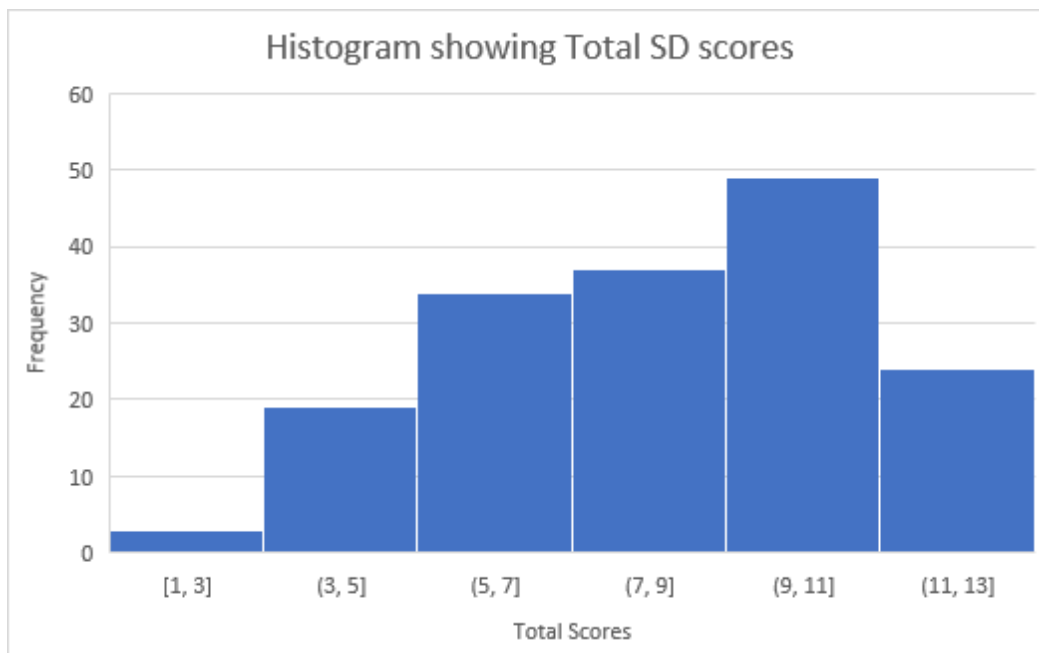
	Cronbach's
Point Estimate	0.672

Internal Reliability:

Internal consistency measured using Cronbach's alpha was 0.650 for Factor 1 (*Hrī/Modesty*) and 0.733 for Factor 2 (*Sāntoṣa/Contentment*). The internal reliability of the social desirability scale was determined separately, the Cronbach's alpha value was 0.672.

6.3 INFLUENCE OF SOCIAL DESIRABILITY:

Since this is a self-report measure, there may be an element of social desirability bias. In order to assess that, a smaller version of Crowne & Marlowe's Social Desirability Scale (13-items) was used. The scores of this alone were plotted on a histogram. It was found that majority scores range between 7 and 11 out of 13. This suggests that the responses are moderately biased and hence the scale is socially sensitive. This bias might also influence the results of the study and therefore the tool will have to be evaluated to reduce such confounding factors. Social desirability bias can be reduced by reframing the items, indirect questioning etc. However, this might vary based on the sample population.



Chapter 7

Discussion

The aim was to develop a tool to measure the yogic constructs - *Yama* and *Niyama* and how it makes a difference when adopted and followed in an individual's life. These concepts, although ancient, are very relevant to the present just as morals and ethics or Do's and Don't's to live in harmony in any society. We developed a 98-item questionnaire having 17 sub-domains. These sub-domains were divided among us and analyzed and interpreted separately. These constructs will be analyzed, refined and consolidated into shorter versions and then put together as one tool to measure *Yama* and *Niyama*.

Hrī (Modesty) and Saṁtoṣa (Contentment/Happiness) Scale

The results of the survey of *Hrī* and *Saṁtoṣa* seem to be promising and they can be refined and consolidated to be used together with the other constructs. They have an internal reliability (Cronbach's alpha) of 0.650 and 0.733 respectively. The internal reliability for factor 1 is relatively poor while that of factor 2 is satisfactory. The overall MSA being 0.772, the assumption checks have statistically significant values of less than 0.05. Parallel analysis was used to determine the underlying factor structure, the output extracted 2 factors as per the initial theoretical model. According to the theoretical model, *Hrī* comprised of questions 1-8 and *Saṁtoṣa* comprised of the questions 9-15. However, in the analysis, the items in factor 1 and 2 did not match the theoretical structure. The following items correlated with factor 2 (*Hrī*)- Q1 to Q4 and Q11; and with Factor 1 (*Saṁtoṣa*)- Q5 to Q10 and Q12 to Q15. The analysis showed 10 items for factor 1 and 5 items for factor 2. The factor loadings range between 0.44 and 0.67 for Factor 1 and 0.51 and 0.64 for Factor 2. Most items have to be reviewed and/or modified due to low factor loadings (<0.5). The applied rotation method is oblimin for both factors. Both factors have fairly low communality values of less than 0.5. However, since this is a qualitative

scale, some of the items with low communality may also contribute to a well-defined factor. The reasons for low factor loadings and communality are to be evaluated to improve the tool in the future. This pilot study helps in deciding what items and factors should be kept, removed or modified for the *Yama Niyama* tool. It helps us revisit and revise the process of item generation and tool development to improve the validity and reliability of the scale.

The existing literature in this domain of research is inadequate. We found two tools similar to that of the Yama Niyama scale. The *Aṣṭāṅga Yoga Hindi Scale* is a self-report measure of the *Yama* and *Niyama* according to *Patañjali Yogasūtras*. It includes five *yamas* (*Ahimsā, Satya, Asteya, Brahmacharya* and *Aparigraha*) and five *Niyamas* (*Śauca, Saṁtoṣa, Tapah, Svādhyāya* and *Ishwara Pranidhana*). The questionnaire consisted of 87 items in the first phase and 43 items in the final try-out phase. The internal reliability of the scale (Cronbach's alpha) measured 0.88. The study has devised many sub-scales for each part of *Aṣṭāṅga Yoga*, some of which have low reliability (Raina & Singh, 2018).

A Measure of Yoga Self-restraint Scale using Confirmatory Factor Analysis is a 27-item scale with five sub-domains (non-violence, truthfulness, non-stealing, celibacy and non-possessiveness) and with Cronbach's alpha of 0.74 (Dadhore & Paran Gowda, 2019).

These tools measure an aspect of the *Yama* or the *Niyama*. The *Hindi Aṣṭāṅga Yoga* scale is concentrated to a population who know the Hindi language and it also has specific focus on the *Yama* and *Niyama* solely from the *Patañjali Yogasūtras*. The Yoga Self-restraint scale aims to measure the management of health and wellbeing through self-restrain yoga measures in students aged between 11-18.

Our scale aims to combine both these foundational concepts (*Yama Niyama*) and correlate it with the present circumstances. The sub-domains included are taken from different sources of literature making it an extensive and rigorous tool.

Chapter 8

Conclusion

These fundamental concepts of modesty, happiness or contentment remain unchanged while the world we live in is constantly changing. These basic personality traits, when adapted in our lives help lead a better quality of life for ourselves and the people around us. Through this tool, we found that modesty and contentment can be quantified and measured through the yogic context and, that they are connected to the present times. The results of the preliminary study show promising results to pursue further research and development of the *Yama- Niyama* Scale.

Chapter 9

Appraisal

Strength of the Study:

Since there has not been much work already existing in this dimension of research, we aim to consolidate and create a tool that will help in further exploration into the roots of yoga- *Yama* and *Niyama*. The constructs are chosen from different works of ancient literature increasing the scope of the study. The domains are viewed in different perspectives to correlate the concept to the present without losing its meaning and essence from ancient literature. The sample size was fairly large as shown by the overall MSA.

Limitation of the Study:

Since these constructs are similar to morals or ethics, it is difficult to quantify and assess. They are subjective in nature making it hard to differentiate between what is right and what is wrong. There is also an element of social desirability bias and other confounding factors that needs to be controlled. Since it is an online survey, it is difficult to assess the state of mind of the individual who is filling the questionnaire which influences the response and therefore, the results of the study.

Scope of the Study:

The scale can be used to assess and identify personality traits of an individual. Understanding ourselves will enable us to introspect and integrate positive values of humility, modesty, gratitude and contentment to live a better quality of life by any individual. The tool can be used specifically in school and work setups to identify, assess and appraise positive human values.

Chapter 10

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APPENDIX

Below is the tool that was developed for the study.

Personality Questionnaire

Namaste!

I am Mridani Adiga, currently pursuing my master's degree in Yoga Therapy from SVYASA Deemed to be University, Bangalore. I have undertaken a research study (MSc dissertation) under the guidance of Prof. Judu Ilavarasu.

This study attempts to understand the association between age, Yoga practice and certain personality aspects. Your participation is voluntary. You may withdraw from the study at any point, if you are not comfortable.

The whole survey will take around 5 minutes to complete.

All the information that is provided by you for the purpose of this study, will be kept strictly confidential and will be utilized for research and academic purposes.

The following questions assess certain aspects of your personality. Please respond to the question in the best way that represents your natural response. There is no right or wrong answer, so please respond based on what spontaneously appears to your mind, on a five-point Likert scale of Never, Rarely, Sometimes, Frequently, very often.

I have read and understood the above details. I hereby, give consent to use the information I provide and voluntarily participate in the study.

Agree

Disagree

(Section 1)

1. Name (Optional)

2. Email ID (Optional)

3. Age*

18-30

31-40

41-50

51-60

60 above

4. Gender*

Male

Female

Prefer not to say

5. Education*

12th grade or below

Under graduate degree or equivalent

Post graduate degree or above

Other

6. Occupation*

Student

Working

Self employed

Home maker

Retired

Other

7. Are you a yoga practitioner? *

Yes

No

8. If yes, since how long are you practicing?

Less than 6 months

6 months -1 year

1-3 years

More than 3 years

(Section 2)

1. In a crowd, I enjoy being the center of attention.

Very often

Frequently

Sometimes

Rarely

Never

2. I often feel the need to be praised for my work or effort.

Very often

Frequently

Sometimes

Rarely

Never

3. Luxury and branded products usually make me happy.

Very often

- Frequently
- Sometimes
- Rarely
- Never

4. I often tend to talk about my skills and achievements to others.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

5. I believe in divine power or unmanifest power.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

6. I feel angry if my mistake is pointed out.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

7. I get angry when criticized.

- Very often
- Frequently
- Sometimes

Rarely

Never

8. I can accept my mistakes without getting angry or offended.

Very often

Frequently

Sometimes

Rarely

Never

9. For the most part, I feel content about my life.

Very often

Frequently

Sometimes

Rarely

Never

10. I am grateful for my experiences.

Very often

Frequently

Sometimes

Rarely

Never

11. I find happiness in material products.

Very often

Frequently

Sometimes

Rarely

Never

12. When I face a difficult situation in my life, I try to remain neutral.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

13. I accept situations as they come, good or bad.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

14. I often find myself getting irritated or angry.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

15. I tend to compare myself with others and feel insecure.

- Very often
- Frequently
- Sometimes
- Rarely
- Never

(Marlowe-Crowne 13-item Social Desirability scale)

16. It is sometimes hard for me to go on with my work if I am not encouraged.

True

False

17. I sometimes feel resentful when I don't get my own way.

True

False

18. On a few occasions, I have given up doing something because I thought too little of my ability.

True

False

19. There have been times when I felt like rebelling against people in authority even though I knew they were right.

True

False

20. No matter who I'm talking to, I'm always a good listener.

True

False

21. There have been occasions when I took advantage of someone.

True

False

22. I'm always willing to admit it when I make a mistake.

True

False

23. I sometimes try to get even, rather than forgive and forget.

True

False

24. I am always courteous, even to people who are disagreeable.

True

False

25. I have never been irked when people expressed ideas very different from my own.

True

False

26. There have been times when I was quite jealous of the good fortune of others.

True

False

27. I am sometimes irritated by people who ask favours of me.

True

False

28. I have never deliberately said something that hurt someone's feelings.

True

False

Thank you for your time and effort! Please provide Suggestion/ Feedback if any.
