Chapter 4
Development of Norms

This chapter provides details about the development of norms (stanine norms) for the standardization of the SRT trait scale of personality in Indian psychology. These stanine norms are prepared for the general population, males, females, and professional groups.

4.1. Development of the norms

The true value of data is revealed when the individual scores are related to the scores of the entire group for an appropriate comparison and norm-referenced scores bring this value to data. A stanine (standard nine) score is a simple and reliable way to scale test scores or raw scores on the nine-point scale. It is a method to convert any test score to a single-digit score. They are distributed on a continuum of one to nine, in which nine is the highest stanine and one is the lowest stanine. The properties of stanine scores are quite similar to the properties of the normal distribution curve. Therefore, stanine scores can be treated like the normal distribution curve. Stanine scores were chosen because they are simple to understand and can be expressed through one-digit whole numbers.
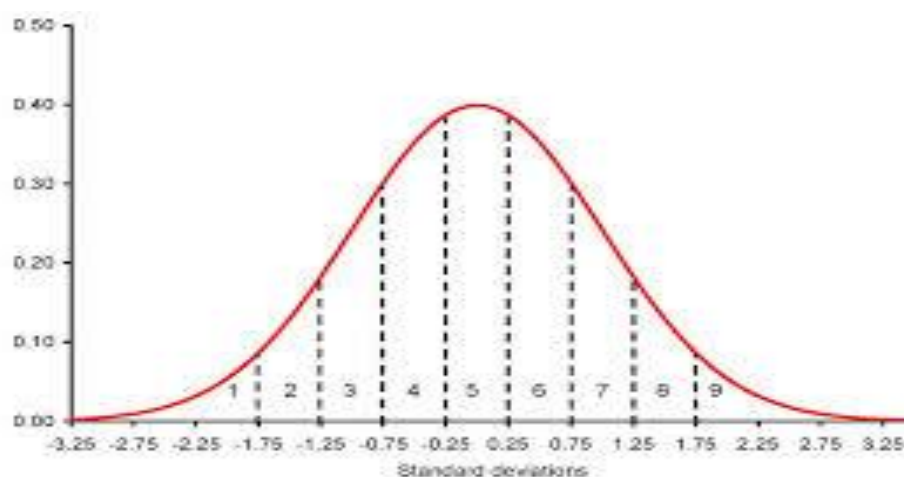

Figure 4.1. Similarity between Normal Probability Curve and Stanine scores

The scores of the top four percent of the participants in a normal distribution curve were assigned to a stanine score of nine, the next seven percent to a stanine of eight, and so on (see Table 4.1 for understanding stanine distribution). The stanine scores are helpful for the professionals to make a qualitative decision regarding the raw score.

Table 4.1

Relation between stanine and normal distribution curve

Stanine	1	2	3	4	5	6	7	8	9
Percentage	4	7	12	17	20	17	12	7	4

The data of 1018 participants is been used for establishing stanine scores for three categories: 1) norms for the general population, 2) norms for following profession groups- students, teaching professionals, administrative professionals, engineers and medical professionals and 3) lastly, norms for males and females.

4.1.1 Norms for the general population

Establishing norms is the ultimate purpose of standardization of a test (Ferguson, 1981), hence stanine scores for the general population were developed. The following interpretation of stanine scores holds true for all the subsequent norm tables. Stanine one to three represent a low degree of presence of the traits. Stanine four to six represent a moderate degree of presence of the traits. Stanine seven to nine represent a high degree of presence of the traits.

The 1018 participants of the study have an age range of 20 to 65 years and an average age of 35.42. Table 4.2 on Appendix F on page 222 shows the conversion of

the raw scores on each trait to stanine scores for general population. For convenience and practical use, these stanine scores are compressed in Table 4.3 on Appendix F on page 223.

4.1.2. Norms for the professional groups

Rathvon (2004) suggested that while establishing norms for the general population, a review of the subgroups was relevant. This helps in comparing an individual's performance with that of his or her gender or professional peers rather than comparing it only with the general population. Therefore, the sample of 1018 participants was sorted into eight professional groups- students, teaching professionals, administrative professionals, engineers, medical professionals, lawyers, self-employed people and home-makers.
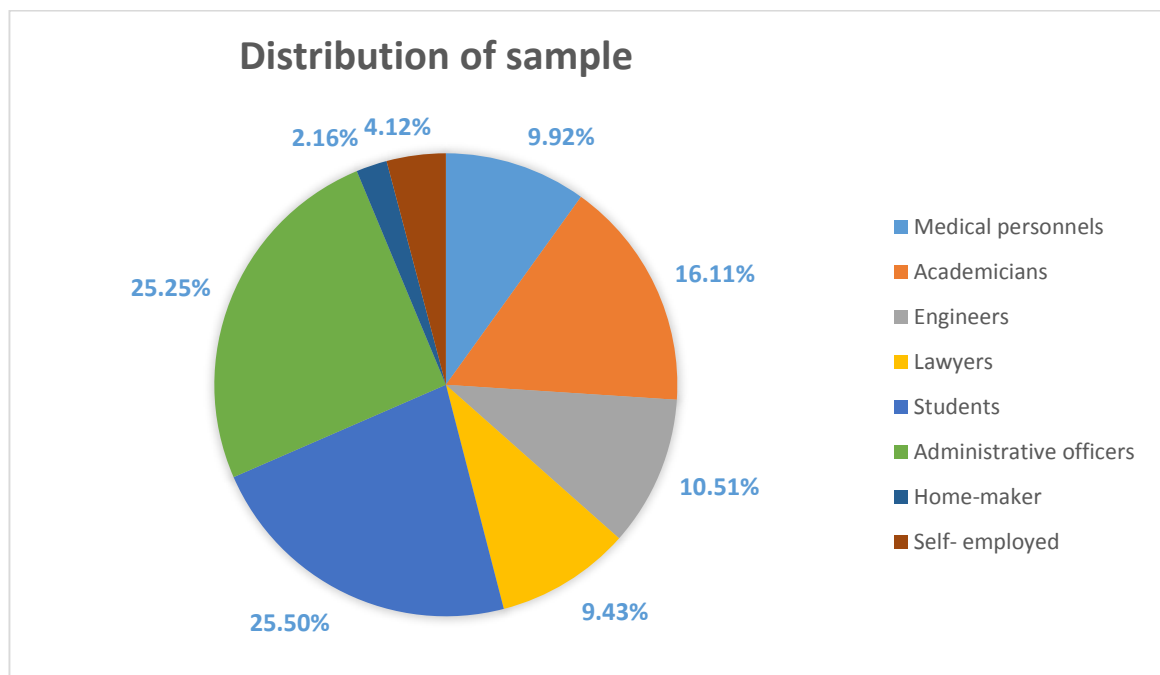
Distribution of sample

Color	Category
■	Medical personnels
■	Academicians
■	Engineers
■	Lawyers
■	Students
■	Administrative officers
■	Home-maker
■	Self- employed

- 9.92% Medical personnels
- 16.11% Academicians
- 10.51% Engineers
- 9.43% Lawyers
- 25.50% Students
- 25.25% Administrative officers
- 2.16% Home-maker
- 4.12% Self- employed

Figure 4.2. Distribution of 1018 sample according to professions

The representative size of the sub groups for establishing norms should be at least 100 participants per subgroup, in accordance with the criteria set by Alfonso and

Flanagan (1999). The number of participants in three professional groups, namely

lawyers, self-employed and home-makers were insufficient. Hence, norms for these

three groups were not prepared. Given below are the norms for five professional

groups- students, teaching professionals, administrative professionals, engineers and

medical professionals.

The first group consists of 229 students pursuing their higher education

(25.50% of the total sample), who are in an age range of 20 to 35 years. The average

age of this group is 24.04. Table 4.4 in Appendix F on page 224 shows the conversion

of the raw scores to stanine scores. Table 4.5 in Appendix F on page 225 shows

compressed stanine scores of the same group for convenience and practical use.

The second group consists of 164 teaching professionals, basically teachers

from primary school, secondary school and universities (16.11 % of the total sample).

Their age range is 23 to 65 years and the average age is 35.05. Table 4.6 in Appendix

F on page 226 shows the conversion of the raw scores to Stanine Scores. Table 4.7 in

Appendix F on page 227 shows the compressed stanine scores of the same group for

convenience and practical use.

Participants in the third group are 257 administrative professionals of class I,

II and III working in the government and private organisations of Vadodara (25.25%

of the total sample). They ranged in age from 20 to 69 years, with a mean age of

43.59. Table 4.8 in Appendix F on page 228 shows the conversion of raw scores to

stanine scores. Table 4.9 presents the compressed stanine scores of the same group in

Appendix F on page 229 for convenience and practical use.

The fourth group consists of 107 software, mechanical and electrical engineers

(10.51% of the total sample). Participants ranged in age from 22 to 62, with a mean

age of 39.60. Table 4.10 in Appendix F on page 230 shows the conversion of raw scores to stanine scores. Table 4.11 in Appendix F on page 231 present the compressed stanine scores of the same group for convenience and practical use.

The fifth group consists of 101 professionals from the field of medicine, nursing, physiotherapy, homoeopathy and mental health (9.92% of the total sample). The age of the participants ranged from 21 to 62 years and their average age is 28.83. Table 4.12 in Appendix F on page 232 shows the conversion of raw scores to stanine scores. Table 4.13 in Appendix F on page 233 present the compressed stanine scores of the same group for convenience.

The sixth group consists of 96 professionals from the field of law. The age of the participants ranged from 25 to 64 years and their average age is 42.88. The seventh group consists of 42 self-employed people. The age of the participants ranged from 22 to 62 years and their average age is 33.78. The eighth group consists of 22 homemakers. The age of the participants ranged from 25 to 57 years and their average age is 40.95. As mentioned earlier, the table of conversion of raw scores to stanine scores for the lawyers, self-employed people and homemakers were not prepared.

4.1.3. Norms for Gender

Like the professional groups, subgroups of gender were sorted to establish norms. From the 1018 participants, 52.94 % were males and 47.05% were females. The number of participants in each gender group was appropriate to establish norms (Alfons & Flanagan, 1999).
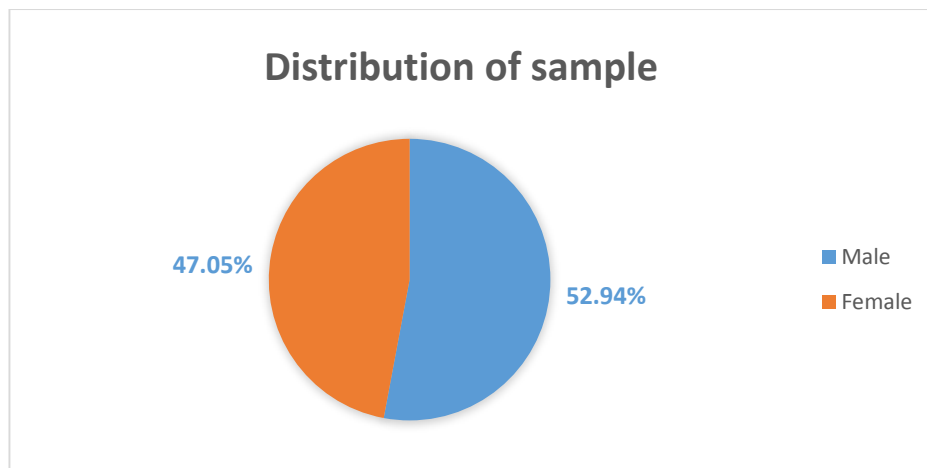
Figure 4.3. Distribution of 1018 sample according to genders

The 539 male participants have an age range from 20 to 65 years and a mean age of 38.65. Table 4.14 in Appendix F on page 234 shows the conversion of raw scores on each trait to stanine scores for males. Table 4.15 in Appendix F on page 235 shows compressed stanine scores of the same group for convenience and practical use.

The 497 female participants have an age range from 20 to 65 years, with a mean age of 31.77. Table 4.16 on Appendix F on page 236 shows the conversion of raw scores to stanine scores for females. Table 4.17 in Appendix F on page 237 shows compressed stanine scores of the same group for convenience and practical use.

4.2. Conclusion

In this chapter, raw data were standardized to establish norms for the 11 traits of the SRT-trait scale of personality. Norms were established in terms of Stanine-Scores for the general population, gender and five professional groups (academician, administrative personnel, medical professional, engineers and students).

The next chapter comprises of personality profiles based on the professional groups and gender groups, and analyses to find the difference among the eight groups of professionals and between both the genders on the basis of traits.