**Big Data Analysis of Traditional Knowledge Based Ayurveda Medicine**

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**Supplemental Digital Content 1: Definition of Prakriti & Vikriti and treatment methodology in Ayurveda**

According to Ayurveda, an individual is born with a specific Prakriti(healthy proportion of physiological constituents i.e. Vata, Pitta and Kapha) which is understood to be the biological basis of each individual .Prakriti describes individual’s susceptibility to disease and responsiveness to extrinsic and intrinsic environments9,10,38.

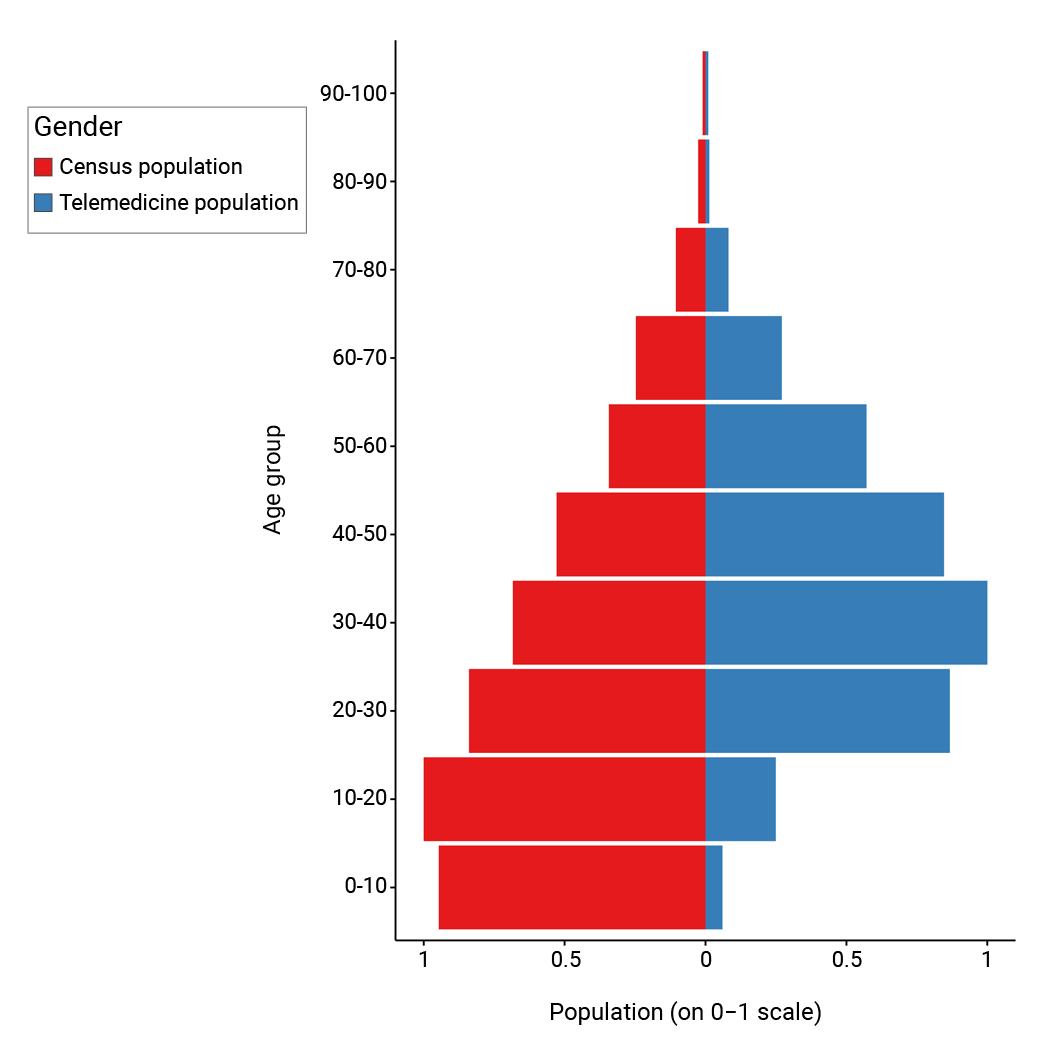
During diseased state an individual moves away from Prakriti to a Vikriti state (diseased state – imbalanced proportion of Vata, Pitta and Kapha). Ayurveda treatment involves: (a) assessment of disease by investigating basic physical constituents of body (Prakriti and Vikriti) as documented in the Ayurveda, (b) treatment through personalized mixture of naturally available herbs and other ingredients for each patient based on specific imbalance of its physical constituents and (c) management of health and prevention of disease through lifestyle and diet via continuous participation with patients .

**Supplemental Digital Content 2: Ayurvedic disease elements correlated with modern medicine description**

Ayurvedica assessment of disease phenotype correlated with modern medicine description. 106 modern medicine sub disease type were used to categorise 318 disease elements as defined by Ayurveda having specific treatment.

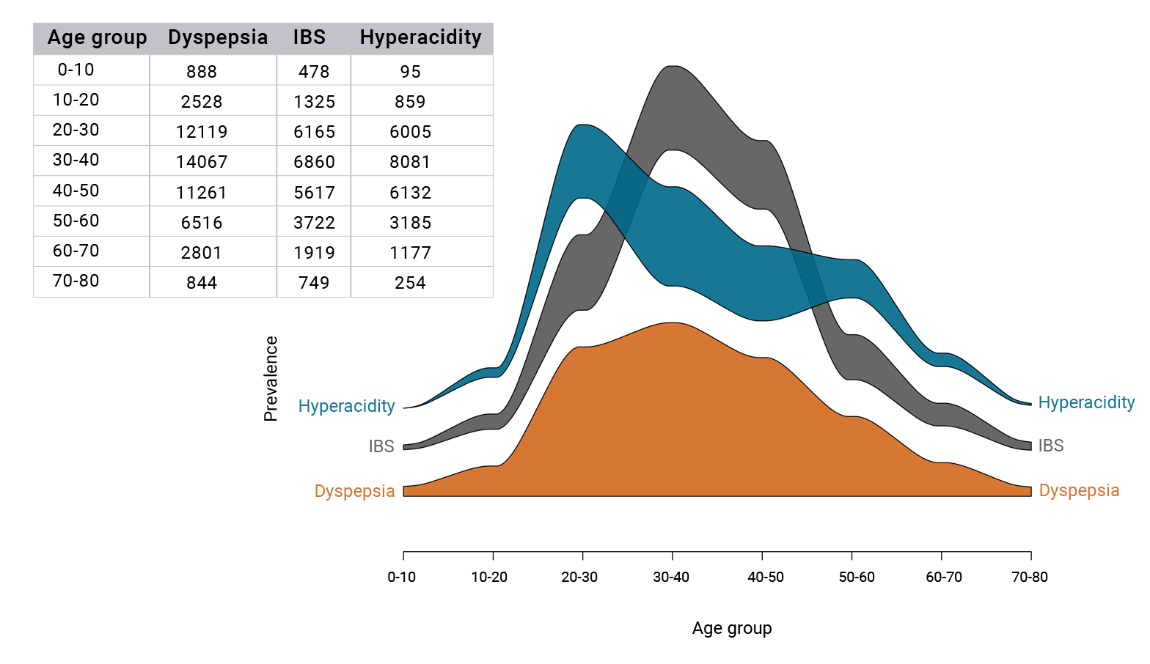
|  |  |  |  |
| --- | --- | --- | --- |
| **S.No** | **System** | **Disease sub-category** | **Disease element** |
| 1 | Cardiovascular | Angina | Angina Pectoris |
| 2 | Hrit Shool |
| 3 | Congenital Heart Disease | Congenital Heart Disease |
| 4 | Coronary artery Disease | Hridya Bhighat |
| 5 | Myocardial Infarction |
| 6 | Disease of heart muscles | Caridomyopathy |
| 7 | Myocarditis |
| 8 | Dyspnoea | Paroxysmal Dyspnoea |
| 9 | Heart disease | Hrid Rog |
| 10 | High Cholesterol | Hypercholestraemia |
| 11 | Hyperlipidaemia |
| 12 | Hypertension | Hypertension |
| 13 | Pulmonary Hypertension |
| 14 | Hypertension / Coronary Heart Disease | cardiomegaly |
| 15 | Irregular Heartbeat | Heart Block |
| 16 | Paroxymal Atrial Techycardia |
| 17 | sinus Tachycardia |
| 18 | Rheumatic Fever | Rheumatic Fever |
| 19 | Venous disease | Varicose Veins |
| 20 | Deep Veinous Thrombosis |
| 21 | Digestive | Diabetes\_Digestive | Trishna |
| 22 | Diabetes(Thirst) | Thirst |
| 23 | Disease of Appendix | Appendicitis |
| 24 | Disease of Oesophagus | Dysphagia |
| 25 | Disease of Pancreas | Pancreatitis |
| 26 | Disease of Spleen | Splenomegaly |
| 27 | Dyspepsia | Aaddhmana |
| 28 | Aatopa |
| 29 | Agni Mandhya |
| 30 | Ajirna |
| 31 | amajirna |
| 32 | Aruchi |
| 33 | Dyspepsia |
| 34 | Gastritis |
| 35 | Rassheshajirna |
| 36 | Vidangdhajirna |
| 37 | Gall Bladder Stone | Gall stone: Cholecystitis |
| 38 | Hernia | Inguinal Hernia |
| 39 | Umblical Hernia |
| 40 | Hyperacidity | Amal pitta |
| 41 | Chardi |
| 42 | Gastric Ulcer |
| 43 | GERD (Gastroesophageal Reflux Disease) |
| 44 | Hiatus Hernia |
| 45 | Hyperthyroidism | Karshayata |
| 46 | IBS | Atisaar |
| 47 | Coeliac Disease |
| 48 | Crohnâ€šÃ„Ã´s Disease |
| 49 | Diverculitis |
| 50 | Grahanij |
| 51 | Irritable Bowel syndrome |
| 52 | Kaphaj Grahani |
| 53 | Pittaj Grahani |
| 54 | Pravahika |
| 55 | Ulcerative Colitis |
| 56 | Vibandh |
| 57 | Vataj Grahani |
| 58 | Liver | Ascites |
| 59 | Cirrhosis of the Liver |
| 60 | Hepatitis B |
| 61 | Hepatitis C |
| 62 | Hepatomegaly |
| 63 | Hicca |
| 64 | Hiccup |
| 65 | Jaundice |
| 66 | Kamla |
| 67 | Kumbh Kamla |
| 68 | Liver abscess |
| 69 | Liver Failure |
| 70 | Parasite infection | Worm infestation |
| 71 | Piles/Fissure/Fistula | Fissure |
| 72 | Fissure |
| 73 | Fistula |
| 74 | Piles |
| 75 | Rectal prolapse |
| 76 | Rectal prolapse |
| 77 | Ulcers | esophageal ulcers |
| 78 | Peptic Ulcer |
| 79 | Rakta Pitta |
| 80 | Stomatitis |
| 81 | Eyes and Ears | Ear | Ear perforation |
| 82 | Suppurative otitis media |
| 83 | Senile deafness |
| 84 | Eye | Blephritis |
| 85 | Cataract |
| 86 | Conjuctivities |
| 87 | Glucoma |
| 88 | Hypermetropia |
| 89 | Myopia |
| 90 | Night blindness |
| 91 | Retinitis pigmentosa |
| 92 | Stye |
| 93 | Tinnitus | Tinnitus |
| 94 | Endocrine | Diabetes | Diabetes Mellitus |
| 95 | Diabetic nephropathy |
| 96 | Diabetic Neuropathy |
| 97 | Diabetic retinopathy |
| 98 | Periphral neuropathy |
| 99 | Diabetes Insipidus | Diabetes Insipidus |
| 100 | Obesity | Obesity |
| 101 | Pituitary | Hyperpituarism |
| 102 | Hypopituarism |
| 103 | Short stature | Height Short |
| 104 | Thyroid | Goitre |
| 105 | Hyperthyroidism |
| 106 | Hypothyroidism |
| 107 | Atikrish |
| 108 | Gynaecological | Abortion | Missed Abortion |
| 109 | BOD | Ectopic Pregnancy |
| 110 | BOH | Abortion |
| 111 | Habitual Abortion |
| 112 | BOH | Putraghni |
| 113 | Spontaneous Abortion |
| 114 | Vamini |
| 115 | Cancer | Carcinomata Cervical |
| 116 | Carcinomata Endometrial |
| 117 | Carcinomata Ovarian |
| 118 | Carcinomata Uterine Tube |
| 119 | Carcinomata Vaginal |
| 120 | Carcinomata Vulval |
| 121 | Carcinoma | Yonikanda |
| 122 | Contraception | Contraception |
| 123 | Disease of Red blood cells | Anemia |
| 124 | Disease of cervix | Antarmukhi |
| 125 | Kardini |
| 126 | Disease of Ovary | Atrophic Ovary |
| 127 | Ovary Absense |
| 128 | Ovary Duplication |
| 129 | Ovary Single |
| 130 | Disease of Uterus | Adenomyosis Uteri |
| 131 | Endometriosis |
| 132 | Fibroid uterus |
| 133 | Uterus Absense |
| 134 | Uterus Duplication |
| 135 | Uterus Enlarged |
| 136 | Uterus Myomas |
| 137 | Uterus Retroflexion |
| 138 | Uterus Retroversion |
| 139 | Uterus Shrinked |
| 140 | Vataja |
| 141 | Disease of vagina | Krichra Maithunta (dyspareunia) |
| 142 | Suchimukhi |
| 143 | Sushka Yoni |
| 144 | Dysmenorrhea | Udavartini |
| 145 | Genital warts | Yoni arsh |
| 146 | Hymen Imperforate | Hymen Imperforate |
| 147 | Infection | Cervicitis |
| 148 | Pelvic Inflammatory Disease |
| 149 | Pittaja |
| 150 | sveda pradar |
| 151 | Vaginitis |
| 152 | Vaginitis (Yonishotha) |
| 153 | Infertility |
| 154 | Primary infertility |
| 155 | Secondary infertility |
| 156 | Shanda Yoni |
| 157 | Menstrual Disorder | Amenorrhoea |
| 158 | Arajaska |
| 159 | Dysfunctional Uterine Bleeding |
| 160 | Dysmenorrhoea |
| 161 | Menorrhagia |
| 162 | Post Menopausal syndrome |
| 163 | Premenstrual Tension |
| 164 | Primary Amenorrhoea |
| 165 | Rakta Yoni |
| 166 | Secondary Amenorrhoea |
| 167 | Misc\_Gynae | Tumours of the Trophoblast |
| 168 | Polyps | Polyps |
| 169 | Prolapse | Cystocoele |
| 170 | Mahayoni |
| 171 | Rectocoele |
| 172 | Uterus Prolapse |
| 173 | UTI\_Gynae | Urine Incontinence |
| 174 | Vaginitis | Sannipataja |
| 175 | Acharana |
| 176 | Aticharana |
| 177 | Bartholinitis |
| 178 | Kaphaja |
| 179 | Paripluta |
| 180 | Prakcharana |
| 181 | Upapluta |
| 182 | Misc | Karni Yoni vyapad |
| 183 | Nervous | Headache | Headache |
| 184 | migraine |
| 185 | Shankak |
| 186 | Suryavarta |
| 187 | suryavarta vipraya |
| 188 | Trigeminal neuralgia |
| 189 | Muscles disorders | muscular dystrophy |
| 190 | Neurological disorders | Carebral palsy |
| 191 | CVA |
| 192 | Fatigue |
| 193 | Parkinsons disease |
| 194 | Osteoarthritis | Sarvang vaat |
| 195 | Paralysis | Ardhang vaat |
| 196 | Ekangvaat |
| 197 | Facial Paralysis |
| 198 | Paralysis |
| 199 | Psychological Disorder | Agerophobia |
| 200 | Anxiety Neurosis |
| 201 | Delirium |
| 202 | Dementia |
| 203 | Epilepsies |
| 204 | Major Depressive Illness |
| 205 | OCD |
| 206 | Unmaad |
| 207 | Vishad |
| 208 | Yoshaparmar |
| 209 | Schizophrenia |
| 210 | Spinal Disorder\_Nervous | Gridhrasi vataj |
| 211 | Gridhrasivata kaphaj |
| 212 | Sciatica |
| 213 | Respiratory | Allergies | Allergic Rhinitis |
| 214 | Asthma | Allergic asthma |
| 215 | Bronchial Asthma |
| 216 | Kas Rog |
| 217 | Swas Rog |
| 218 | Tamak Swas |
| 219 | COPD | Chronic Bronchitis |
| 220 | Bronchiectasis |
| 221 | COPD |
| 222 | Emphysema |
| 223 | Liver\_Respiratory | Hicca Rog |
| 224 | Nasal cavity disease | Bhranshthu |
| 225 | Coryza |
| 226 | DNS |
| 227 | Nasal polyps |
| 228 | pinas |
| 229 | Pittaj-Pratishya |
| 230 | Pratishya |
| 231 | Swathu |
| 232 | Pneumonias | Pneumonias |
| 233 | Psychological Disorder\_Respiratory | Senile dementia |
| 234 | Sarcoidosis | Sarcoidosis |
| 235 | Tuberculosis | Parshav Shool |
| 236 | Pleurial Effusion |
| 237 | Pleurisy |
| 238 | Post TB |
| 239 | Tuberculosis |
| 240 | Upper respiratory infection | Laryngitis |
| 241 | Swar bheda |
| 242 | Upper Respiratory Tract Infection | Pharngitis |
| 243 | Sexual | Prostate | Benign Prostatic Hypertrophy (BPH) |
| 244 | Sexual Disorder | Azoospermia |
| 245 | Erectile Dysfunction |
| 246 | Frigidity |
| 247 | Genital Warts |
| 248 | Gonorrhea |
| 249 | Oligospermia |
| 250 | Premaha |
| 251 | Premature Ejaculation |
| 252 | Syphilis |
| 253 | Dhatu Rog |
| 254 | UTI\_Sexual | Non-specific Urethritis |
| 255 | Viral | Herpes Simplex |
| 256 | Virus | HIV / AIDS |
| 257 | Skeleton | Arthritis | Amavata |
| 258 | Arthritis |
| 259 | Frozen shoulder |
| 260 | Psoriatic Arthritis |
| 261 | Rheumatoid Arthritis |
| 262 | vatakantak |
| 263 | Connective Tissue Disorder | Systemic Lupus Erythematosus (SLE) |
| 264 | Gout | Vata Rakta |
| 265 | Gout |
| 266 | Neurological disorders | Avbauak |
| 267 | carpal tunnel syndrome |
| 268 | Vishvachi |
| 269 | Osteoarthritis | Osteoarthrosis |
| 270 | Sandivata |
| 271 | Spinal Disorder | Ankylosing Spondylitis |
| 272 | Cervical Spondylosis |
| 273 | DDD (Degenerative disc degeneration) |
| 274 | Herniated Disc |
| 275 | Lumbar Spondylosis |
| 276 | Temporo mandibular Joint Disorders | hanustambh |
| 277 | Tendonitis | Tennis elbow |
| 278 | Writers dystonia |
| 279 | Skin | Acne | Acne Vulgaris |
| 280 | Yuvana Pidaka |
| 281 | Allergy | Skin Allergy |
| 282 | Diseases of Skin | Crack heel |
| 283 | Hypomelanosis |
| 284 | Kshudra Kushtha |
| 285 | Lichen simplex |
| 286 | Maha Kushtha |
| 287 | Moles |
| 288 | Pityriasis (tenia) Versicolor |
| 289 | Pityriasis Rosea |
| 290 | Eczema | Eczema |
| 291 | Hair | Indralopta |
| 292 | khalitya |
| 293 | Paliyta |
| 294 | Infection\_Skin | Moniliasis |
| 295 | Pemphigus |
| 296 | Pyodermas |
| 297 | Ringworm |
| 298 | Parastic skin infestation | Scabies |
| 299 | Parastic skin/hair infestation | Pediculosis |
| 300 | Pruritis | Pruritis |
| 301 | Psoriasis | Lichen Planus |
| 302 | Psoriasis |
| 303 | Urticaria | Urticaria |
| 304 | Viral | Herpes Simplex |
| 305 | Herpes Zoster |
| 306 | Vitiligo | Shwet Kushtha |
| 307 | vitiligo |
| 308 | Urinary | Diseases of Kidney | Hydronephrosis |
| 309 | Kidney cyst |
| 310 | Mutraghat |
| 311 | Nephrotic syndrome |
| 312 | High BP | Pulmonary Hypertension |
| 313 | Renal Failure | Renal Failure |
| 314 | Stone | Ashmari |
| 315 | Urinary Calculi |
| 316 | UTI\_Urinary | Hematuria |
| 317 | Mutrakrisha |
| 318 | Urinary Tract Infection |

**Supplemental Digital Content 3: Scaled population pyramid: Telemedicine vs census patient population**

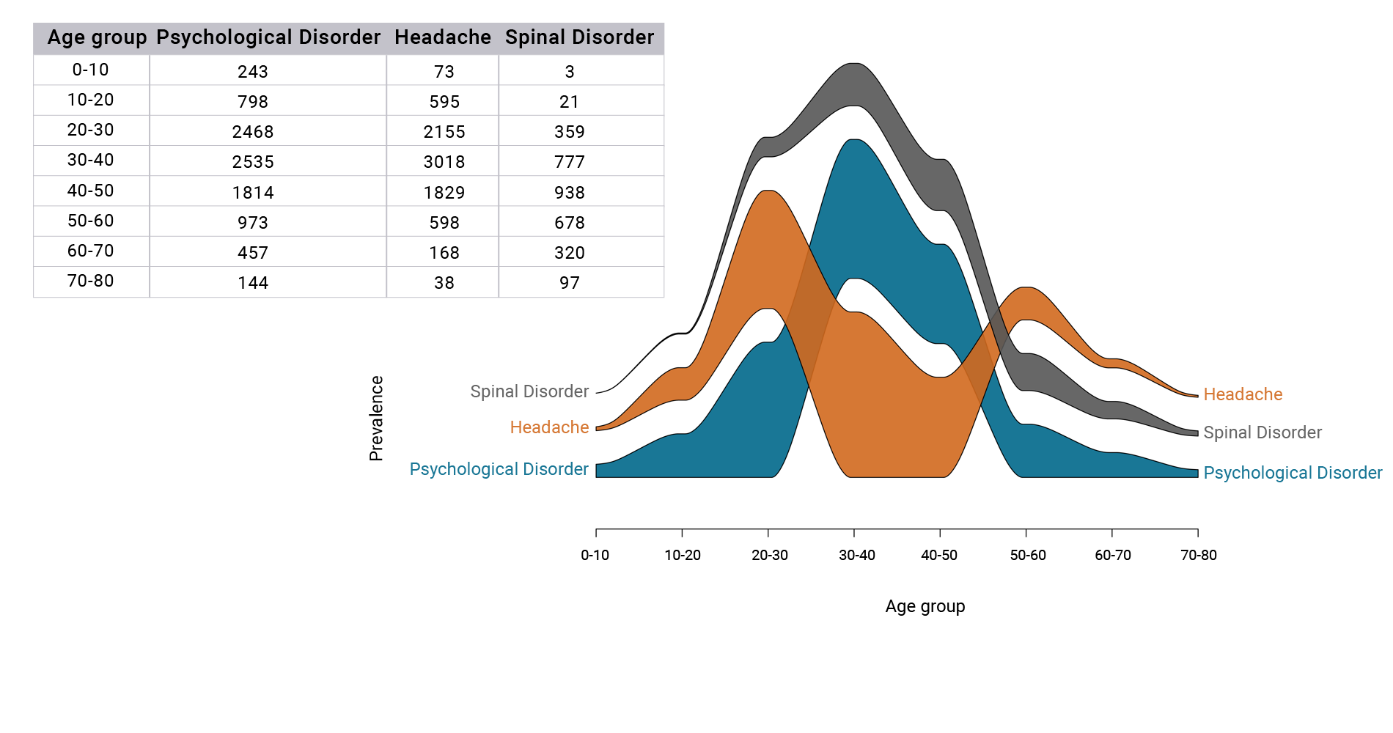


Suppl. Figure 3: India Census population count vs Telemedicine patient count for various age groups

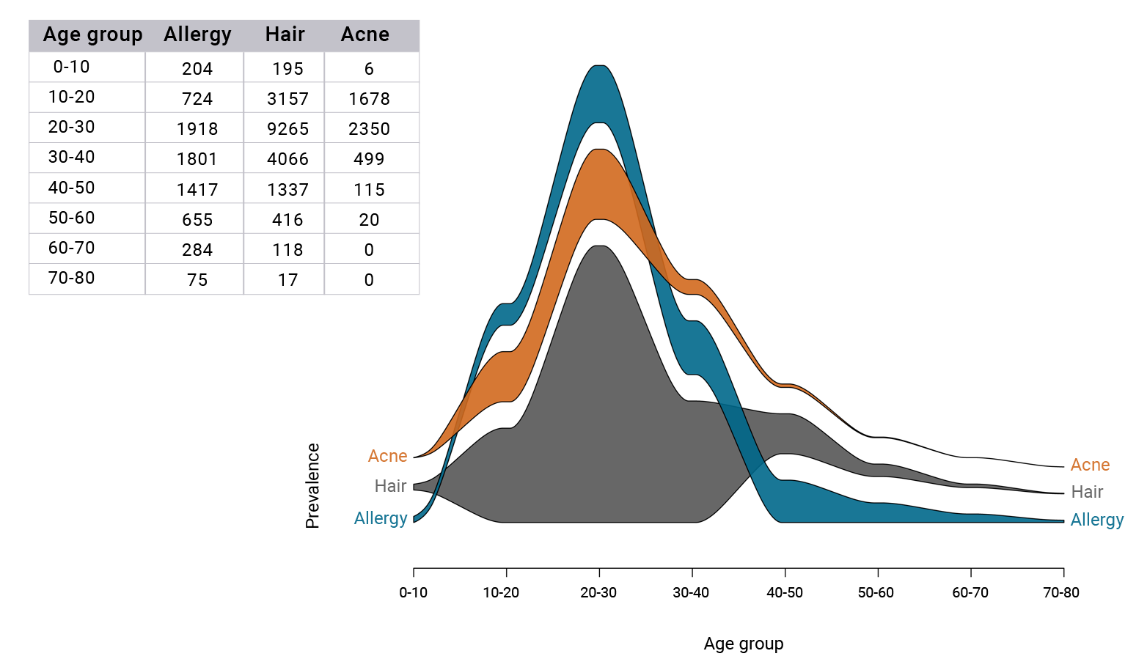
**Supplemental Digital Content 4: Three most prevelant disease elements of six major disease systems**

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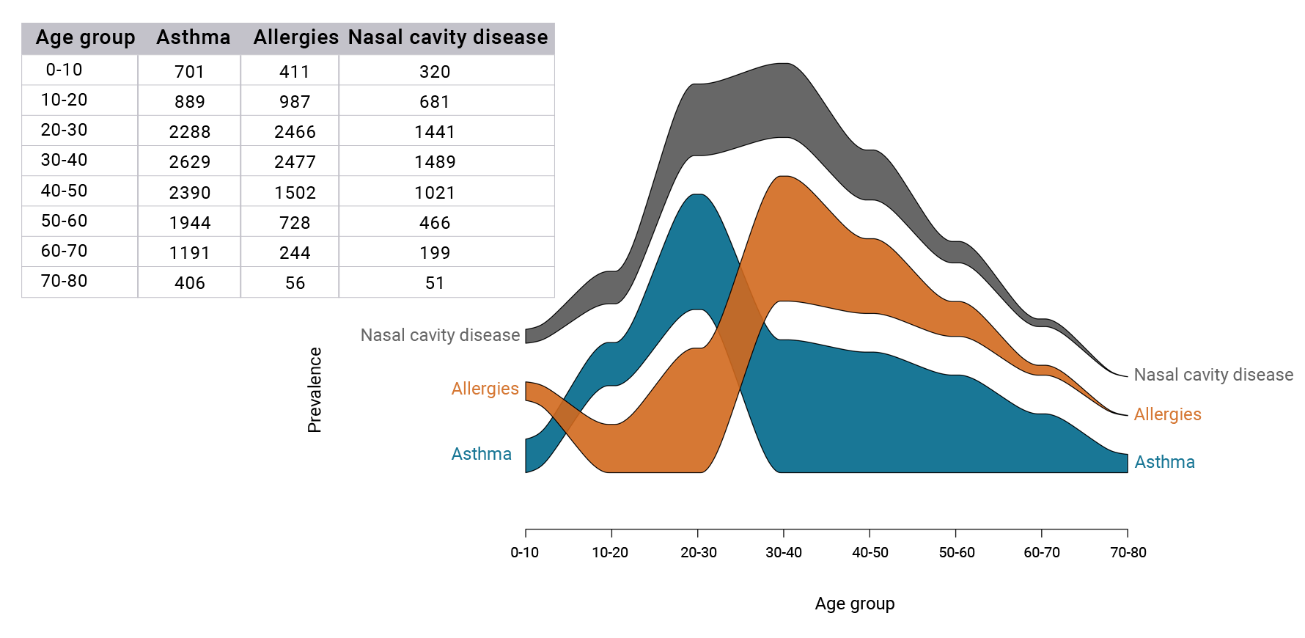
**Fig Supp 4A: Digestive**

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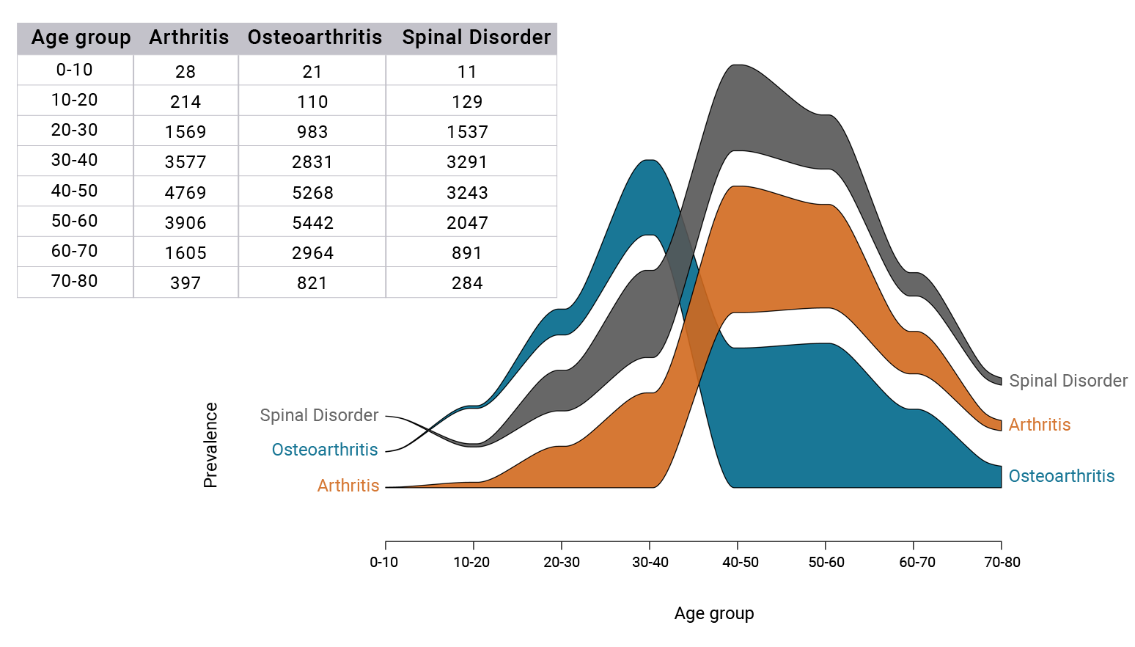
**Fig Supp 4B: Nervous**

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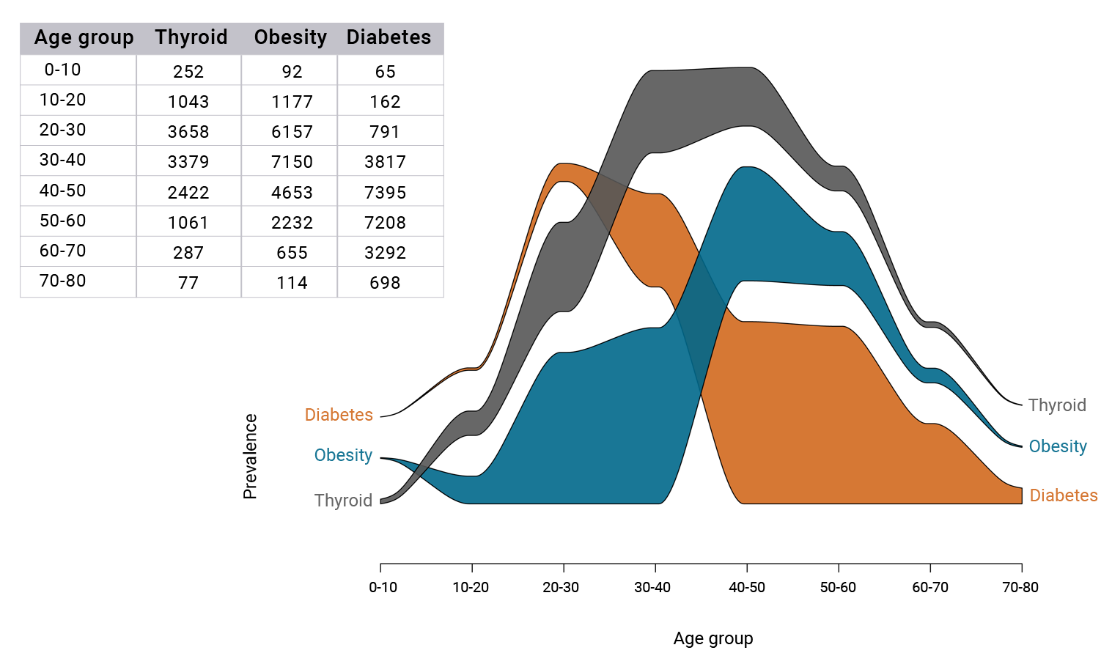
**Fig Supp 4C: Skin**

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**Fig Supp 4D: Respiratory**

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**Fig 4E: Skeleton**

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**Fig 4F: Endocrine**

**Supplemental Digital Content 5: Vikriti based classification of sub diseases and disease elements**

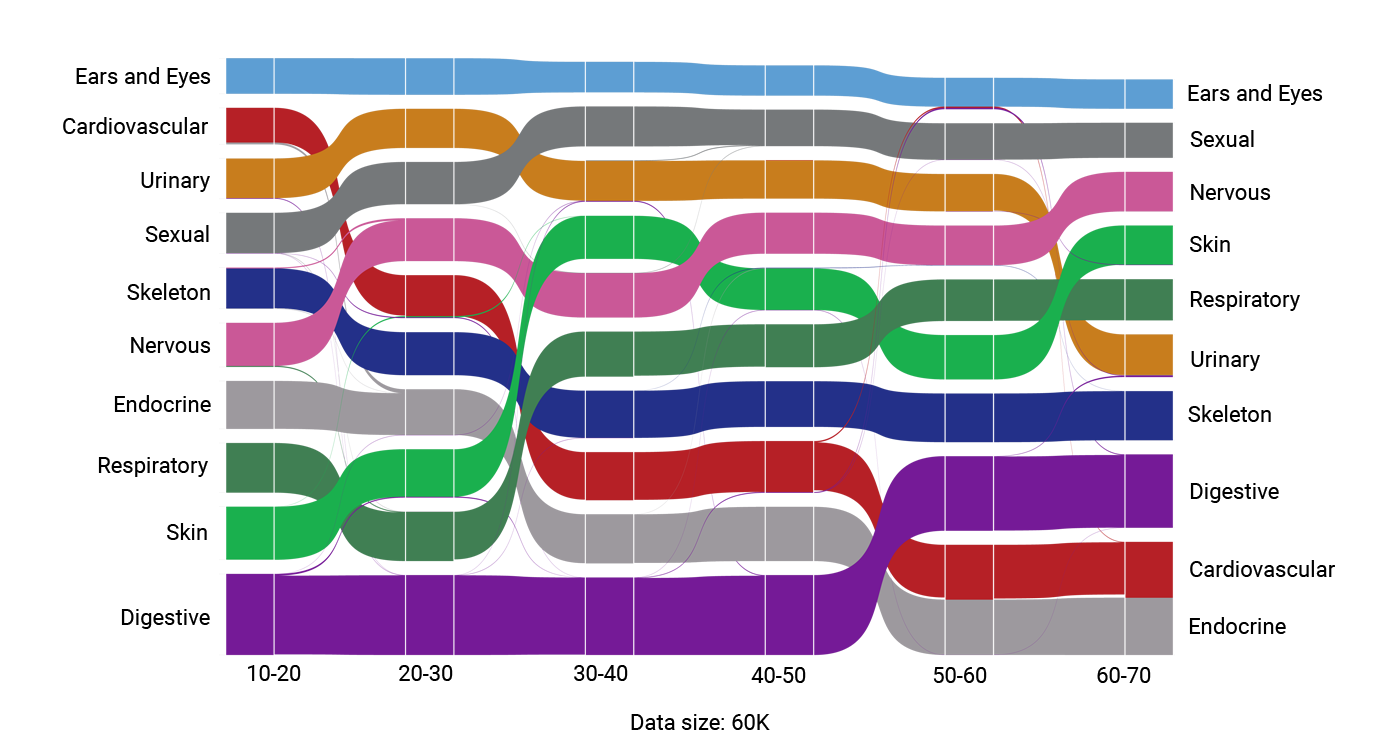
Below table shows dosha based (color coded) classification of six major diseases, patient count at disease

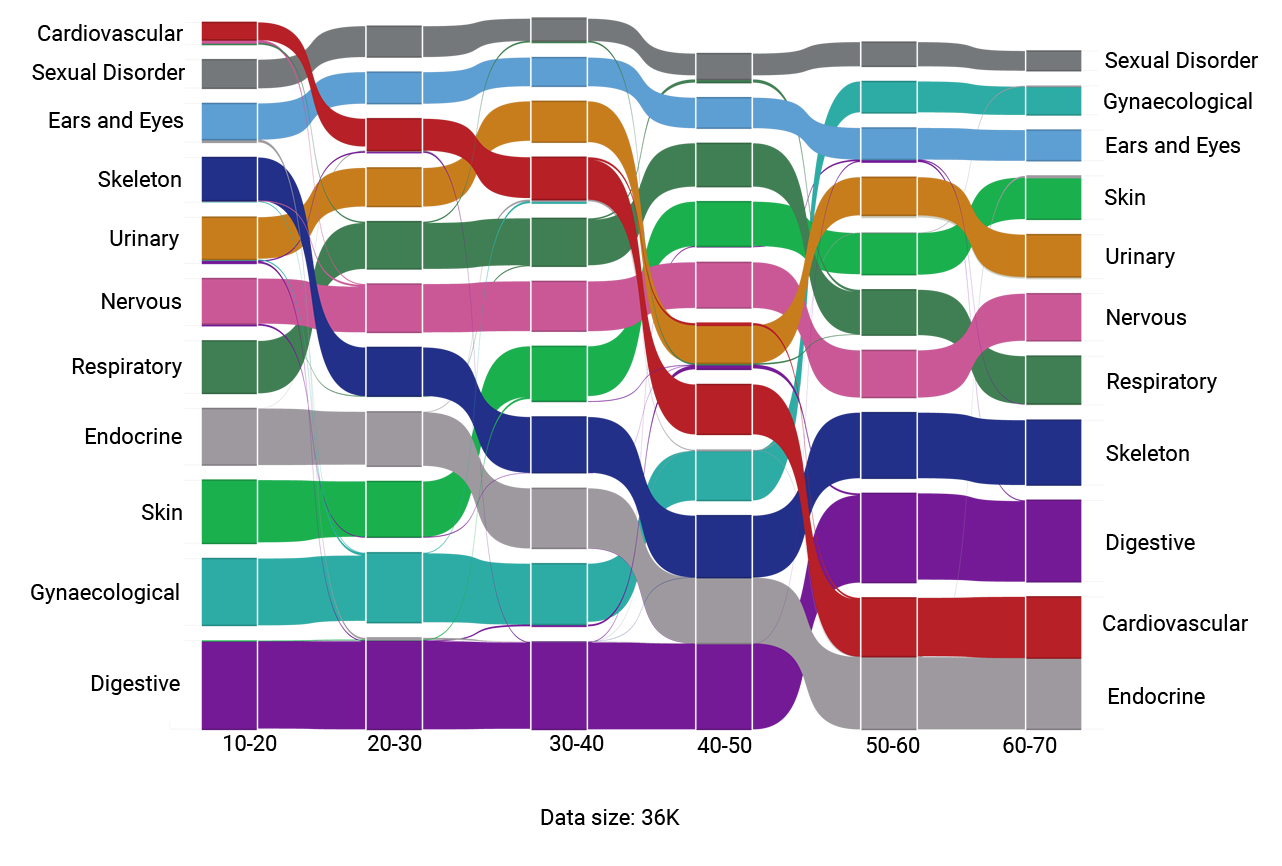
level, their sub diseases (as per modern medicine name mapping), major dosha at sub disease level and

patient count at sub disease level.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Dominant vikriti** | **Disease** | **Count** | **Disease sub category** | **Count** |
|  |  | **954** | **Tinnitus** | **381** |
| **Vata** | **Ears & Eyes** | **Ear** | **179** |
|  |  | **Eye** | **394** |
|  |  |  |  |  |
|  |  | **10988** | **Psychological disorder** | **4030** |
|  |  | **Headache** | **3521** |
| **Vata** | **Nervous** | **Misc** | **1937** |
|  |  | **Spinal disorder** | **1392** |
|  |  | **Osteoarthritis** | **108** |
|  |  |  |  |  |
|  |  | **23208** | **Osteoarthritis** | **8942** |
|  |  | **Arthritis** | **6086** |
| **Vata** | **Skeleton** | **Spinal disorder** | **5659** |
|  |  | **Gout** | **2248** |
|  |  | **Misc** | **231** |
|  |  | **Connective Tissue Disorder** | **42** |
|  |  |  |  |  |
|  |  | **13690** | **Liver** | **7** |
|  |  | **Asthma** | **6090** |
|  |  | **Allergies** | **4155** |
| **Kapha** | **Respiratory** | **Sinusitis** | **2755** |
|  |  | **Misc** | **418** |
|  |  | **COPD** | **157** |
|  |  | **Upper Respiratory Tract Infection** | **108** |
|  |  |  |  |  |
|  |  | **27754** | **Thyroid** | **5235** |
| **Kapha** | **Endocrine** | **Pituitary** | **1218** |
|  |  | **Diabetes** | **12959** |
|  |  | **Obesity** | **8342** |
|  |  |  |  |  |
|  |  | **18636** | **Hair** | **8755** |
|  |  | **Allergy** | **2872** |
|  |  | **Acne** | **2014** |
|  |  | **Psoriasis** | **1411** |
| **Pitta** | **Skin** | **Vitiligo** | **1143** |
|  |  | **Urticaria** | **917** |
|  |  | **Misc** | **752** |
|  |  | **Eczema** | **574** |
|  |  | **Infection** | **198** |

**Supplemental Digital Content 6: Male Jaccard’s similarity based Alluvial diagram**



**Supplemental Digital Content 7: Female Jaccard’s similarity based Alluvial diagram** ****