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A review on the Current Areas of Geriatric's Research in Iran

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Abstract: **Introduction:** Population aging is becoming a global challenge for developing countries. The aim of the present paper is to review the current literature on geriatric health and to propose possible research areas. **Materials and Methods:** By reviewing scientific databases, all published papers in geriatric health within the last 5 years (until 31 December, 2019) were extracted. Inclusion criteria were being about elderly health conducted on Iranian elderly population and published no longer than 5 years ago. Unrelated, foreign studies and qualitative, trend analysis, and case series were excluded. The keywords were classified into 5 macro domain of General, Biological, psychological, Social and Spiritual domains. **Results:** Until 31 December, 2019, 713 related studies were finally retrieved. 56.8% of keywords belonged to the Biological macro domain. Among which, neurologic disorders had the highest proportion of studies (n=108, 15.1%). The most prevalent subdomain was the "Sociological" (P=15.4%) and the most prevalent keyword was "Quality of life". The lowest proportion of studies was belonged to Hematology and Otolaryngology (0.4% each). Among the top institutions in terms of publication output are University of Social welfare and Rehabilitation Sciences (11%), Shahid Beheshti University of Medical Sciences (9.7%), and Iran University of Medical Sciences (9%). **Conclusion:** Most of the literature concerning elderly's health in Iran has focused on biologic aspect of health. There seems to be an urgent need to develop a research roadmap to cover all aspects of research among elderlies. Various prepositions to develop and promote context-based and innovative strategies are also provided.

Keywords: elderly's health; Geriatric; Iran; Review article

1. Introduction

Epidemiological transition alongside of drastic life style modification, urbanization and medical sciences advancements has led to rise in life expectancy across all developed and developing countries (1, 2). Along with the world, Iran has witnessed a sharp rise in the life expectancy so that it has raised from 40 years in 1950 to 76.2 years in 2019 (78 and 74.6 years for women and men, respectively) (3). Aging is defined as the lifelong process of growing older at cellular, organ, or whole body level throughout the life span (4). World

Health Organization (WHO) has reported that although most developed countries have accepted the chronological age of 65 years as a definition of 'elderly' individuals (5), the United Nations (UN) proposed a cut-off at 60+ years to refer to the older population (6). The gradual aging process seems warning on at least two grounds: First, aging population means declined fertility rates; Second: aging populations bring major health problems and concerns that require special planning and healthcare services(1). despite of not significant changes in proportion of elderly people (from 7.2% to 8.2%) in five years by 2011 (7). However, it is estimated that this proportion will rise to 10.5% in 2025 and then doubled to reach 21.7% by 2050 (8). Population aging is now a global challenge requiring health policy-makers to be prepared for possible health consequences and to plan for necessary infrastructures to cope with an elderly population in the future

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Despite the fact that currently geriatric health problems are not the main health concerns in Iran, limited research has shown that health-related quality of life is reasonably lower for elderlies compared to other age groups in Iran. It is reported that some domains of quality of life such as physical role, general health and emotional role have the lowest score (meaning highest deteriorated) while social role functioning has the highest score (meaning best preserved) (9, 10). According to institute of health metric and evaluation (IHME) report, the leading cause of Disability-Adjusted Life Years (DALYs) among Iranian elderly are ischemic heart disease (22.3%), Stroke (8.9%) and Alzheimer's disease (7.5%) while the most contributors for DALY in this subpopulation are hypertension (25.04%), high fasting blood glucose (21.8%) and high body-mass index (13.16%) (11). The present study aimed to present the picture of the current literature on elderly health in Iran and to she lights to the research gaps as the future research directions.

2. Material and Methods

Routine scientific health databases including PubMed, Google Scholar and SID were considered for electronic search based on terms related to Iranian elderly health including "Elderly", "Geriatrics" and "Iran" by two independent researchers in last 5 years until 31 December, 2019. Considering no languages restriction, inclusion criteria were being about elderly health conducted on Iranian elderly population and published during January 2014 to December 2019. Unrelated, duplicated and foreign studies and also qualitative, economic, trend analysis, case report and case series articles were excluded. Remaining studies were screened for frequency of their main keywords, then the table of overall frequency of each keyword in all included studies was drawn and based on, the keywords were classified into 5 macro domain of General, Biological, psychological, social and spiritual and subsequent subdomains. The proportion of each domain of repeated keywords were calculated as well.

3. Results

Until 31 December, 2019, 5385 related articles were found to be screened by two independent researchers. (Figure 1) Of all screened studies, 713 related studies were included, and 76 studies were excluded as they didn't meet the inclusion criteria. Among included studies, there were 118 main keywords which were classified into defined macro domains.

Overall frequency of all keywords was 1047, which were classified into 5 macro domain and 19 subdomains (Table 1). Frequency of each keyword was calculated and proportion of each Macro and subdomains of all keywords were depicted in Figure 2 & 3.

As the top macro domain, 56.8% of keywords belonged to the biological macro domain. Among which, neurologic disorders had the highest proportion of studies (n=108, 15.1%), followed by orthopedic diseases (n=76, 10.7%), endocrinology disorders (n=52, 7.3%) and rehabilitation sciences (N=49, 6.9%).

The most prevalent Subdomain was the "Sociological" keywords with 15.4% and the most prevalent keyword was "Quality of life" with 50 repeats in all included studies. The lowest proportion of studies was belonged to Hematology and Otolaryngology subdomains with 0.4%. The other keywords with lower than 3 repeats were classified in miscellaneous subdomain (figure 3). Review articles in each subdomain were also presented in Table 2, which shows that the most repeated keyword in all review articles was "quality of life".

The most prevalent review articles were belonged to neurology and health subdomains. Infectious, nutrition and trauma subdomains had the lowest proportion of review articles (figure 4).

Among the top institutions in terms of publication output are University of Social welfare and Rehabilitation Sciences (11%), Shahid Beheshti University of Medical Sciences (9.7%), Iran University of Medical Sciences (9%), Tehran and Shiraz Universities of Medical Sciences (7% each).

4. Discussion

The UN has reported that transition of the age composition of populations to an older structure is occurring currently in all regions of the world. It is projected that in 2050, the age pyramids will become more rectangular, or older, shape in both the less and more developed regions, which is a manifestation of an advanced stage of aging (12). Similar to the other developing countries, Iran has witnessed a drastic increase in elderly population during recent decades. The elderly population of the country has grown 2.9 times larger over the past 30 years (1976–2006) while it is expected to increase to approximately 10% of the population by 2026 (13). The World Health Organization on its special issue on ageing has stated that "improving measurement, monitoring and research on Healthy Ageing " is one of the five strategies to provide heath to elderlies around the world (14). The present study aimed to determine the current literature and to shed light to less-studied areas of elderly health in Iran.

We found that more than half (57%) of the literature on elderly health belonged to biologic domain including neurologic, orthopedic disorders and endocrinology disorders. Previous studies showed that chronic, non-communicable diseases such as Type II diabetes, hypertension and obesity constitute main causes of disease burden and DALYs in population aged over 60. It is also showed that near half of men

over 60 years of age along with 52% of the women at the same age group were diagnosed with hypertension in Iran. Furthermore, prevalence of diabetes among elderlies was reported as 20% in men and 24% in women in Iran in 2012 (15, 16).

The Institute for Health Metric and Evaluate has reported that Ischemic Heart Disease, Stroke and Alzheimer constitutes of 22.3%, 8.9% and 7.5% of disease burden in people aged over 70 in Iran, respectively. It is also reported that the main risk factors for these health conditions includes hypertension, high fasting blood glucose and high body mass index with the prevalence of 25%, 21%, and 13% among elderlies over the age of 70 (16).

Additionally, psychologic domain has ranked as the second researched area of elderly in Iran. The highest topics for research in this domain included depression, anxiety, life satisfaction, and sexual health. The least researched domain among elderly population was found to be spiritual domain. Spiritual health as one of the main cornerstones of overall health, has been introduced for more than five decades by the WHO, yet has gained less attention. Spirituality and its aspects constitute a great proportion of individual's life and contributes to one's coping strategies and mechanisms to deal with ageing (17). Despite its importance, little evidence has been addressed the role of spirituality in elderly's life in Iran. This might be due to the lack of proper tools and instruments to quantify spirituality or to the variability of the definition of spirituality.

Our systematic review has shed some lights on the current situation of research on elderly's health in Iran. Still, many basic questions in the field of elderly research are to be answered. In order to gain progress in the field of elderly health, WHO has advised the member states to answer a set of basic research questions as follow: A) what are older people's needs and preferences? How diverse are these?; B)What are current patterns of healthy ageing and whether increased life expectancy is linked with healthy ageing?; C) what are the biological, structural, social and individual determinants of long and healthy life?; D) What are the current needs of older people for health care and long-term care, and are they being appropriately met?; E) Which interventions improve trajectories of healthy ageing, and are the availability, effectiveness and coverage of these interventions improving?; F) How can clinical research be improved to generate information on the effectiveness and cost–effectiveness of therapies in older people or people with comorbidities?; G) Which interventions work to create more age-friendly environments?; H)What are the economic and other contributions of older people? What are the total costs of losses of functional ability in older age on the individual older person, his or her family and community? What is the return on investments in health services, social care and other forms of social protection for older people?(14).

Addressing these and other questions in a way that can be used by policy makers would require research in a range of disciplines and sectors. In this regard, a fundamental step would be to understand the needs, rights and expectations of older people and their families. Another will be to better understand the interactions that older men and women have with their communities, social networks, the health and social sectors, and the broader environment. This will require qualitative and quantitative studies that document how these differ by socioeconomic or other characteristics, including gender and place of residence, and how these relationships have changed over time. Surprisingly, men at advanced ages are the target of scarce evidence in Iran. Despite ample evidence regarding worse health conditions of men, especially in health-seeking behaviors, this subpopulation has received little if any attention by elderly's researchers (14).

Investigations on care givers have shown that family caregivers' appraisal of their care covers a large number of positive aspects. Formation and development of these aspects are further driven by the cultural and social conditions prevailing in the Iranian society (18).

Studies on perceptions of elderlies have showed that perceived health status significantly associated with demographic variables such as age, education, socio-economic class, disease, cultural and social values such as health behaviors, social support and self-esteem (19). Urban elderlies also reported more spiritual needs compared to rural elderly. Being an urban resident also accompanied with more self-reported needs in healthcare, education, recreation, and transportation (20). Another study showed that the unmet needs for elderlies ranked as physical health, medicine, money / budget, daily activities, nutrition, housekeeping and caring. On the other hand, the most fulfilled needs were medication, physical illness and visual and hearing improvement (21).

To gauge the degree to which health and social systems are aligned to the needs of older adults, better information must be available on how the needs arising from health conditions are being met, either by services spanning health promotion, disease prevention, treatment, rehabilitation and/or palliative care. Research also must be capable of answering the question regarding to what extent the full range of services that older people require are available, effective and do not impose a financial burden on individuals or their families. Results of a survey on the situation of age-friendliness hospitals in Tehran Province, Iran has shown that there is a lack of system and program for providing counsel, examination, treatment and follow-up services to senior patients. No protocol for standard medication counseling to seniors was observed, along with no home-based health services, geriatric

physicians and outpatients environments(22).

The substantial changes in the trend of ageing population requires societies to adapt to the new and innovative ways across all sectors. Multi-country, multi-sectoral or multi-disciplinary research that use representative samples of elderly are also important. These type of multi-sectoral and multidisciplinary research can help identify the best strategies according to the setting and context and for diverse populations. Other strategies to promote innovation, information exchange and technology transfer as well as to advertise for resources (whether human, financial or infrastructural) should be adopted by developing countries such as Iran. These developments would surely need proper and delicate research management and collaboration among sectors, disciplines or even countries.

To our surprise, much of the literature on elderly's health in Iran has focused on women's health issues. We propose that multidisciplinary research should incorporate gender-sensitive and gender-specific issues involving older people at every stage. Only with this strategy we can be assured that scientific evidence needed to develop new policies and evaluate existing ones are available (14).

Our systematic review on the current literature of elderly's health in Iran has suffered from a few limitations. First, despite the detailed definition of elderly by the WHO including older adults into three categories of 60-74 years, 75-84 year, and older than 85 years; we could not differentiate these three categories from the included studies. There seems to be necessary to advise on more clarification of study subjects in future research. Second, inability to access the full-text of some articles (due to the journal's copyright considerations) hindered us from more detailed synthesis of the depth of information provided. Although this limitation might not be perceived as an executive limitation, scientific preparation of abstracts to cover the main scope of the articles would help substantially to overcome similar problems.

5. Conclusion

Most of the literature concerning elderly's health in Iran has focused on biologic aspect of health. The least studies domain belonged to spiritual domain. Considering the growing trend of population in advanced ages, there seems to be an urgent need to develop a research roadmap to cover all aspects of research among elderlies. Various prepositions to develop and promote context-based and innovative strategies are also provided.

6. Appendix

6.1. Acknowledgements

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6.3. Conflict of Interest

The authors declare that there is no conflict of interests regarding the publication of this paper.

6.4. Author's contribution

All the authors have the same contribution..

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Table 1: Proportion of each macro and subdomain of all keywords and frequency of each keyword in all included studies (n=713).

Macro domain (%)	Subdomain (%)	Keywords (N)
General (10.1)	Health (10.1)	Quality of life (50), Lifestyle (9), Health literacy/education (7), Self-care (14), Self-management (6), Self-medication (4), Health promotion (4), General health (7), Health need (2)
	Neurology (15.1)	Cognitive(30), Balance(23), Pain(20), Sleep(17), Memory(10), Gait(10), Dementia(9), Transcranial direct current stimulation(6), Alzheimer (5), Speech(5), Motor learning(4), Epilepsy(2), Headache(1),
	Orthopedic (10.7)	Osteoporosis(19), Bone(12), Muscle(12), Sarcopenia(8), Kyphoplasty (8), Orthosis(4), Carpal tunnel syndrome(3),
	Endocrinology (7.3)	Diabetes/diabetic (30), Metabolic syndrome (9), Obesity (8), Fatty liver (2)
	Rehabilitation (6.9)	Medication adherence (10), Resistance training(9), Rehabilitation(4), Functional capacity(3), Functional dependency(3), Hydrotherapy(1), Intubation(1)
	Nutrition (4)	Nutrition/nutrient(27), Dietary(8), Vitamin(7)
	Cardiology (2.6)	Hypertension/hypertensive/ high blood pressure (19), Cardiovascular (14), Coronary (8), Cardiac (5), Lipid profile (5), Stroke(4), Hypotension (3)
Biological (56.8)	Communicable diseases (1.5)	Tuberculosis(5), Coronavirus/COVID-19(5), Helicobacter pylori(2), Pneumocystis jirovecii(1), Hepatitis B/C (1), Influenza(1), Leishmaniosis (1), Psoriasis(1)
	Trauma (1.2)	Fall(39), Injury(10), Hip fracture(8), Other fractures(7), Traffic(2),Head trauma(1)
	Oncology (1.2)	Cancer(12)
	Dentistry (1.1)	Oral/dental health(12)
	Gynecology/ Urology (1)	Urinary Incontinence(3), Prostate(2), Bladder(1), Polycystic ovary(1), Nephrolithiasis(1), Hematuria(1), Nocturia(1)
	Ophthalmology (0.7)	Cataract(3), Eye disease(3), Macular(1)
	Otolaryngology (0.4)	Hearing loss (3), Auditory(1)
	Hematology (0.4)	Anemia(4)
	Miscellaneous (1.1)	Physical activity(29), Exercise(18), Disability/disable(5), Vibration(4),Physical health(4), Smoking(4), COPD(3),Traditional medicine (2), Polymedication (2), Autoimmune(1), Constipation(1)
Psychological (15.2)	Depression/ depressive(38), Mental(30), Psychological(28), Anxiety(17), Life satisfaction(10), Sexual(8), Stress(5), Happiness(6), Emotional(5), Delirium(3), Self-esteem(3), Drug abuse(1), Domestic violence(1), Bipolar(1), Grief(1), Suicide(1), Schizophrenia(1),	
Social (15.4)	Social life (46), Care (36), Nursing home (27), Community Dwelling (22), physical/mental Abuse (17), Self-efficacy(11), Solitary life (2)	
Spiritual (2.8)	Religion/ religious(14), Spiritual(13), Praying(2)	

Table 2: Proportion of each subdomain of keywords used by review articles and frequency of each keyword.

| Subdomain (%)	keyword (Number of review article)
Endocrine (9.25)	Obesity(1), Diabetes/diabetic(2), Hypertension/hypertensive/high blood pressure (2)
Health (16.7)	Oral/dental health(1), Health literacy/education(1), Medication adherence(2),Quality of life (5)
Infectious (3.7)	Coronavirus/COVID-19(1), Tuberculosis(1)
Neurology (16.7)	Alzheimer(1), Transcranial direct current stimulation(2), Vibration(1), Balance(1), Sleep(2), Gait(3)
Orthopedic (7.4)	Osteo…(1), Fall(1), Bone(1), Kypho…(1)
Nutrition (3.7)	Nutrition/nutrient(2)
Psychology (9.25)	Psycho…(1), Depression/ depressive(2), Sexual(2)
Rehabilitation (11.1)	Rehabilitation(1), Exercise(2), Physical activity(3)
Sociology (11.1)	Community Dwelling/ dweller(1), Abuse (not drug)(2), Care(3)
Trauma (3.7)	Injury(2)
Miscellaneous (7.4)	Polypharmacy(1), Psoriasis(1), Traditional medicine(2)
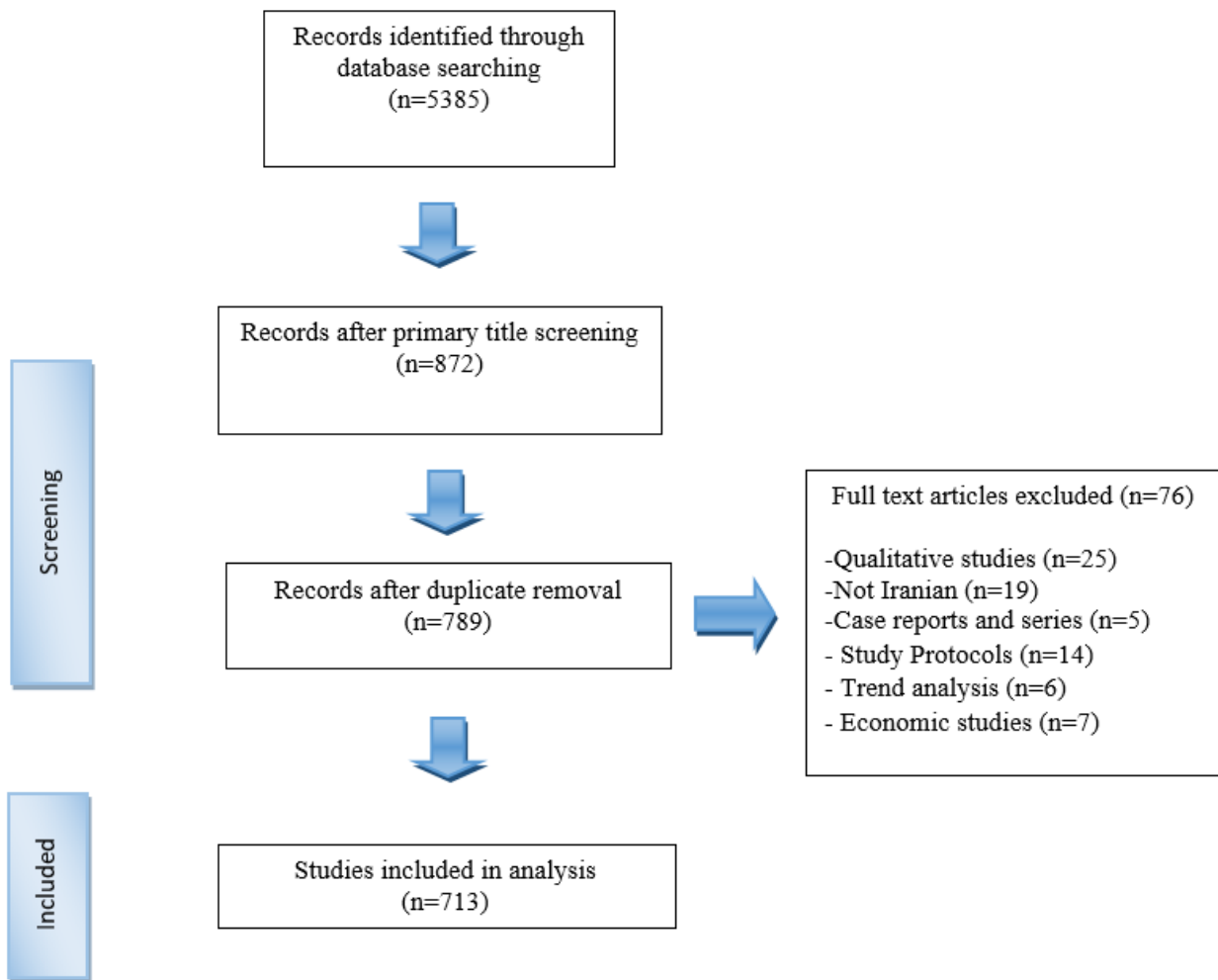
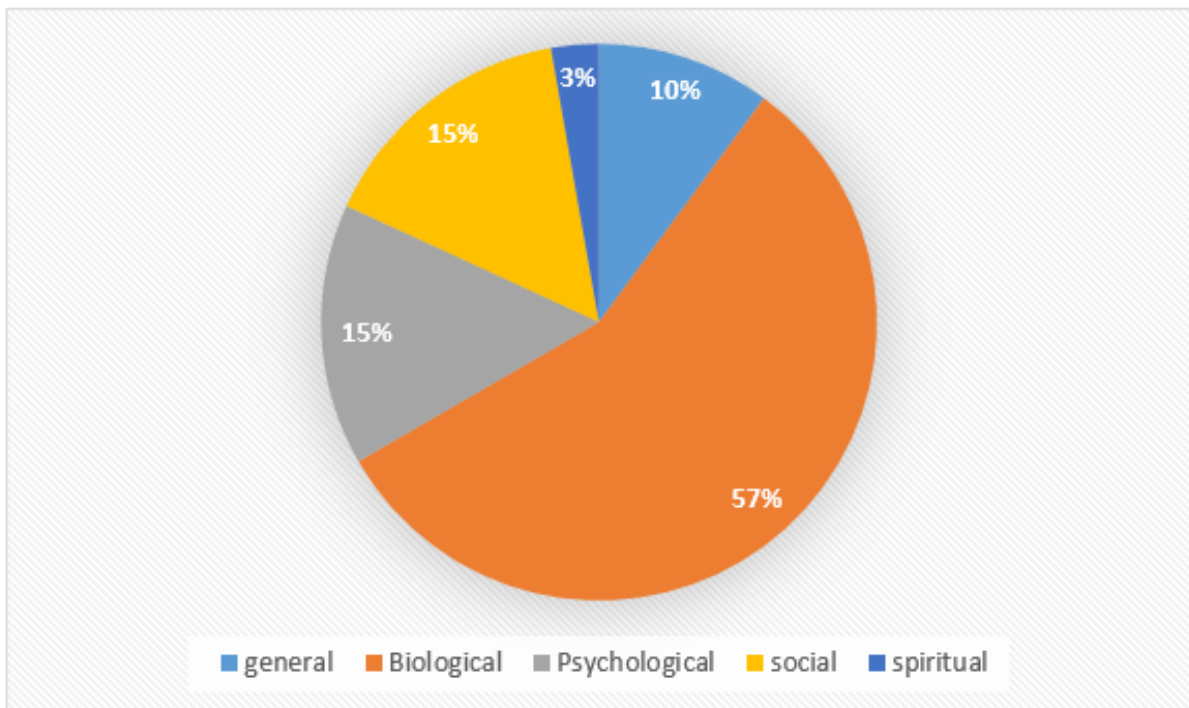**Figure 1:** Flow diagram of screening the related studies from 2014-2019.

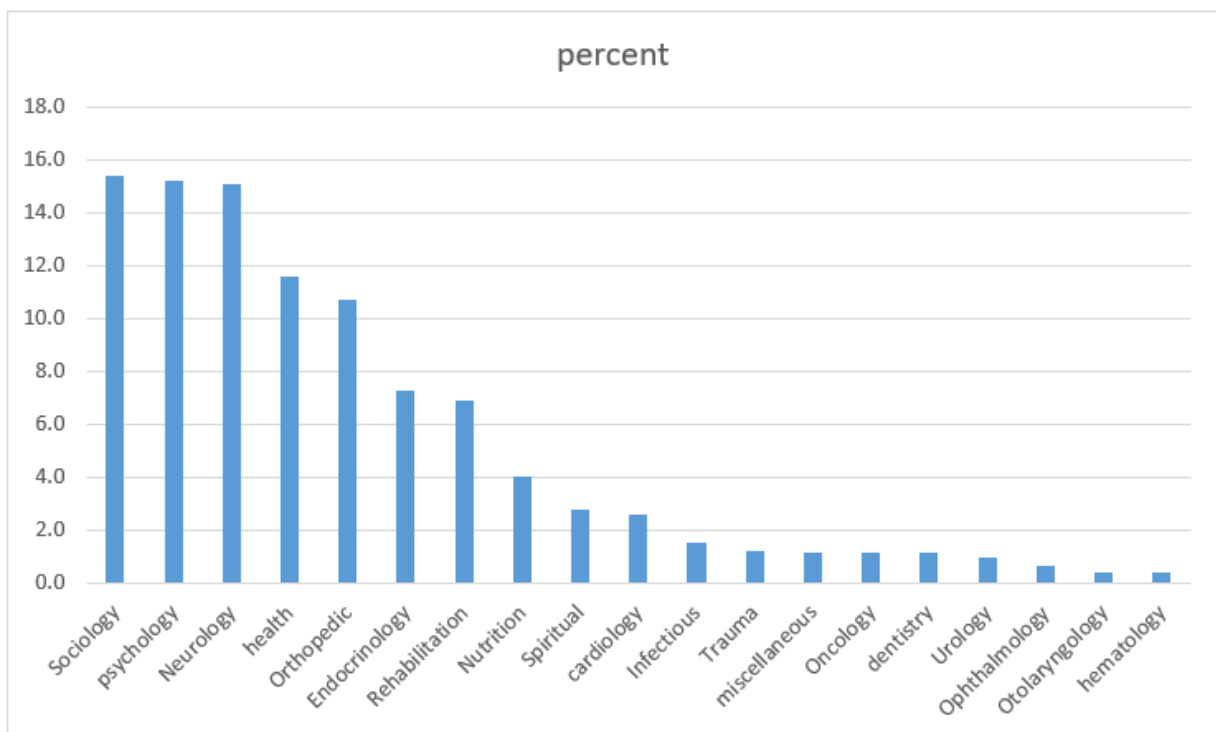**Figure 2:** Proportion of each macro domain of keywords used in all included studies.

Figure 3: Proportion of each subdomain of keywords used in all included studies (n=713).
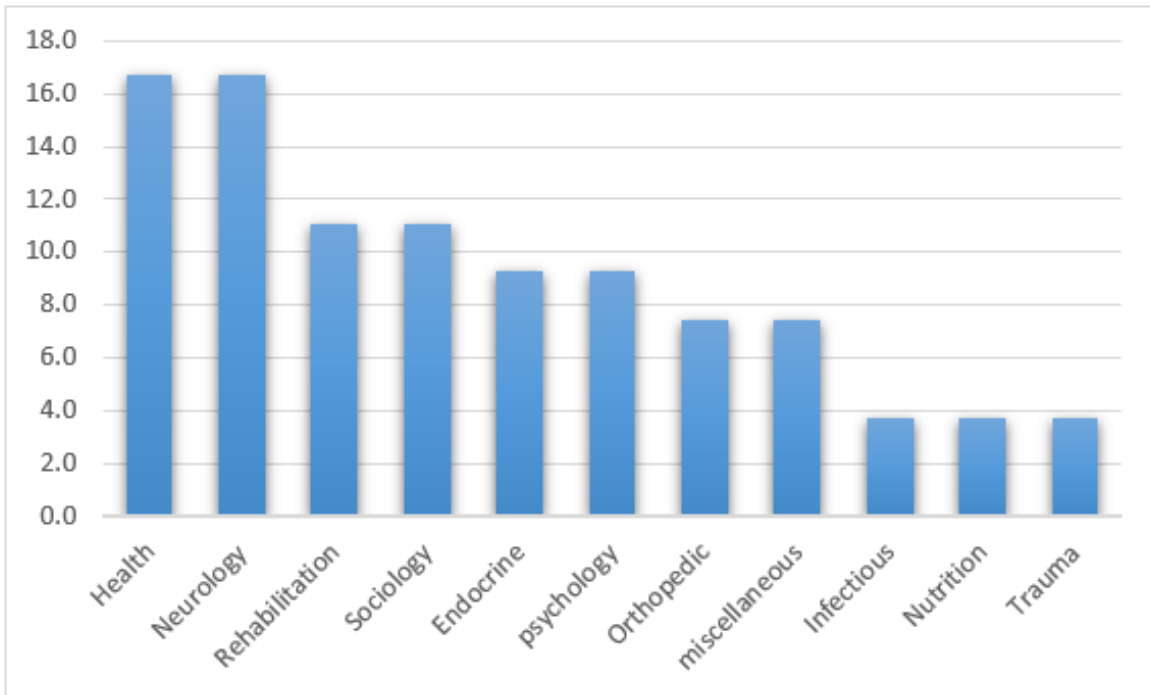
Figure 4: Proportion of each subdomain of all keywords used in review articles.