Original Research

Non-communicable diseases, medication adherence and social support among elderly medical clinic attendees of the Teaching Hospital, Karapitiya, Sri Lanka

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Abstract

Introduction: Sri Lankans 60 years and above are among the highest in South Asia and the country's population is fast ageing. This trend would increase the prevalence of non-communicable diseases (NCD).

Objectives: To determine the prevalence of NCD, medication adherence and social support among elders at the medical clinics in Teaching Hospital, Karapitiya, Sri Lanka

Methods: A descriptive cross-sectional study was conducted among medical clinic attendees aged 60 years and above. A self-administered questionnaire was used to collect data on demography, NCD, medication adherence and perceived social support. Data were collected from every eighth elderly patient attending the medical clinic on clinic days for a month. Binary logistic regression was performed to determine the significant association between study variables ($p < 0.05$).

Results: Data of 459 elders were included for the analysis. Hypertension (76%), diabetes mellitus (44%), ischaemic heart disease (38%), dyslipidaemia (32%), and bronchial asthma (21%) were the top five NCDs observed. High levels of medication adherence and social support were seen only in 24% and 20%, respectively. A significant association for medication adherence was found with social support ($p < 0.05$; Spearman rho 0.09).

Conclusions & Recommendations: Hypertension was the most common NCD among the elders. A significant association for medication adherence was found with social support. Hence, medication adherence among elders could be improved by enhancing perceived social support.

Keywords: asthma, diabetes mellitus, dyslipidaemia, hypertension, ischaemic heart disease, NCD, old age

Introduction

Elderly population increases with the improvements in health and education (1). The global population of elders was 9.2% in 1990, 11.7% in 2013 and is expected to rise to 21.1% by 2050 (2). In 2013, 67% of the elders were living in the developing countries and by 2050, it is expected to increase to 80% (2). Sri Lanka had the highest percentage (12%) of people at the age of 60 years and above in South Asia (3). Further, Sri Lanka would move from ageing to aged society by 2032 (4). The Sri Lankan life expectancies for males and females are 71.2 and 78.5 years, respectively (4). The above trend of population ageing in Sri Lanka would increase its prevalence of non-communicable diseases (NCD) (5). Moreover, ageing population could lead to major socio-economic consequences (6).

With the burden of NCDs, the geriatric population is dependent on a wide range of therapies. However, non-adherence to therapy could impede the therapeutic goals (7). Medication non-adherence could lead to drug wastage, progression of illness, functional disabilities and poor quality of life (8). Further, lack of social support is associated with non-adherence to medication (9). Social support for elders includes emotional support, access to information, companionship and financial support (10). Psychosocial well-being and social support show a significant association among elders (10-12). Moreover, low perceived social support is associated with low quality of life (13), psychological abuse (14), financial exploitation (15) and mortality (16).

Highlighting the health and related social issues is essential among elders in Sri Lanka where the population is fast ageing. However, such studies are scarce in Sri Lanka. Therefore, we aimed to determine the NCD, medication adherence and self-perceived social support among old age medical clinic attendees of Teaching Hospital, Karapitiya, Sri Lanka.

Methods

A descriptive cross-sectional study was conducted at

the Teaching Hospital Karapitiya (THK) located in Galle district. Galle district belongs to Southern Province, which has a population of 1,063,334 by 2012. Out of them 155,996 (15%) were 60 years and above (17). This hospital provides universal-free health care and is the only tertiary care state hospital available for the entire Southern Province. These facts make THK, the low-cost option for elderly patients of Galle to seek specialized care for their medical ailments. Medical clinics are conducted at THK all days of the week except on Sundays.

All patients attending medical clinics, aged 60 years or older and who were permanent residents of Galle district for at least five years were included in the study. Traditionally, the United Nations defines older persons as those aged 60 and above (18). Patients with cognitive impairment were excluded from the study. The number of medical clinic attendees in year 2017 was 93,623 (19). Among them, we assumed that around 50% would be elders; and therefore around 160 patients were expected to attend the medical clinic per day at THK. We collected data from every eighth elderly patient on clinic days (all days of the week except on Sundays) for a month.

A self-administered questionnaire was used to collect data from the selected subjects. The questionnaire included the following sections: demographic data, assessment of medication adherence and perceived social support. The demographic data included data on age, sex, religion, years residing in Galle, profession, monthly income, educational level, marital status, whether living alone, details on non-communicable disease and the total number of medications utilized per day. The participants provided details of their NCD with the help of their clinic record book. Morisky, Green, and Levine Adherence Scale was used to assess medication adherence among study participants (20). It consists of four items, each scored from 0 to 4, with 0 being low adherence and 4 being high adherence. If an item was marked as “yes,” it was scored as 0, and if it is “no” it was scored as 1. The categorical scoring for adherence was as follows: 4 for high adherence, 2–3 for moderate adherence and 0–1 for low adherence. Multi-dimensional Scale of Perceived Social Support (MSPSS) was used to measure perception of support

from a significant other, family and friends (21). This is a widely used and well validated instrument which included twelve questions. Each item has a Likert scale ranging from a minimum score of 1 (very strongly disagree) and a maximum score of 7 (very strongly agree). Total score was calculated by adding all values across the 12 items and subsequently a mean score was obtained. The mean scale score of 5.1 to 7 shows high support, a score of 3 to 5 moderate support and 1 to 2.9 low support. Moreover, scores were analysed for social support from a significant other, family and friends (21). The subjects received the questionnaire in Sinhala language. The questionnaire was back-translated from Sinhala to English by a bilingual (Sinhala and English), English language lecturer. The face validity of the questionnaire was established and subsequently, it was pre-tested in 25 subjects to improve its content, language and sequence. The Cronbach's alpha of questions representing medication adherence, social support from a significant other, family and friends were 0.64, 0.8, 0.8 and 0.95, respectively, indicating good internal consistency in the responses.

Data analysis

The study description and data collection were done by the investigators. The prevalence of NCD was presented as a percentage. Also, percentage of participants was reported for high, moderate and low medication adherence and for high, moderate and low social support from a significant other, family and friends. Friedman-Nemenyi test was performed to find a significant difference between perceived social support from significant other, family and friend. Spearman rho was performed for medication adherence score against age, total number of medications utilized per day and perceived social support score. Moreover, Spearman rho was performed for perceived social support score against age.

Results

Out of the 465 subjects who participated in the study, six were omitted from the analysis due to missing

data, giving a response rate of 98.7%. Most of the study participants were females (n=459), Buddhists (97%), unemployed (73%), having a monthly income of <50,000 Sri Lankan rupees (99%), educated up to or below primary level (56%), married (60%) and not living alone (95%). The mean age of the participants was 70.5 years (SD=6.5) with a range of 61 to 94 years. Eleven percent (n=459) were ≥80 years old. The mean number of years residing at Galle was 65.7 years (SD=14.3) with a range of 5 to 94 years.

All patients attending the medical clinic had at least one NCD. Hypertension (76%) showed the highest prevalence among overall participants. Also, 47% had at least three NCDs. Table 1 provides additional information on their NCD status.

The mean (SD), median (interquartile range) and mode of the total number of medications utilized per day by the participants were 8.4 (3.5), 8 (6-11) and 8, respectively with a range of 1 to 20. The distribution of medication adherence was asymmetric. High, moderate and low medication adherence was found in 24%, 59% and 17%, respectively. Medication adherence was positively correlated with age ($\rho=0.08$) and negatively correlated with the number of drugs per day ($\rho=-0.09$). However, it did not have a significant correlation with age ($p=0.11$) or with the number of drugs per day ($p=0.06$).

The distribution of perceived social support was asymmetric. The overall high, moderate and low perceived social support was found in 20%, 78% and 2%, respectively. Medication adherence had a positive and significant correlation with perceived social support ($\rho=0.09$; $p<0.05$). Perceived social support had a negative, non-significant correlation with age ($\rho=-0.04$; $p=0.38$). The high, moderate and low perceived social support from the significant other was found in 40%, 58% and 2%, respectively. The corresponding values were 24%, 74% and 2% for social support from the family and 7%, 77% and 16% from a friend. A significant difference was found between the perceived social support from significant other and family ($p<0.05$). Also, a significant difference was found between the perceived social support from significant other and friends ($p<0.05$) and also from family and friends ($p<0.05$).

Table 1: Non-communicable diseases among the study participants (N=459)

Non-communicable disease	No.	%	% Male (n=156)	% Female (n=303)	Duration (months)	
					Mean (SD)	Range
Hypertension	349	76.0	66.9	80.8	129 (76)	1-516
Diabetes mellitus	204	44.4	35.7	49.0	141 (82)	1-636
Ischaemic heart disease	172	37.5	39.5	36.4	90 (79)	1-480
Dyslipidaemia	146	31.8	25.5	35.1	126 (64)	6-312
Bronchial asthma	97	21.1	22.3	20.5	119 (120)	6-840
Cerebrovascular disease	35	7.6	14.6	4.0	56 (55)	1-216
Chronic kidney disease	31	6.8	10.8	4.6	21 (24)	1-120
Osteoarthritis	31	6.8	0.6	9.9	75 (56)	2-190
Hypothyroidism	24	5.2	1.3	7.3	115 (119)	15-588
Osteoporosis	10	2.2	0.0	3.3	82 (51)	24-180
Chronic liver cell disease	7	1.5	1.9	1.3	43 (35)	24-120
Epilepsy	7	1.5	2.5	1.0	257 (273)	24-720
Heart failure	7	1.5	3.2	0.7	86 (57)	12-168
Rheumatoid arthritis	6	1.3	0.0	2.0	204 (44)	156-264
Parkinson's disease	3	0.7	1.3	0.3	76 (62)	24-144
Lymphoedema	2	0.4	0.6	0.3	210 (212)	60-360
Deep vein thrombosis	1	0.2	0.6	0.0	NA	NA
Hyperthyroidism	1	0.2	0.0	0.3	NA	NA
Inflammatory bowel disease	1	0.2	0.6	0.0	NA	NA
Migraine	1	0.2	0.0	0.3	NA	NA
Neuropathy	1	0.2	0.6	0.0	NA	NA
Vitiligo	1	0.2	0.0	0.3	NA	NA

NA – Not applicable; SD – Standard deviation

Discussion

Hypertension was the top NCD with a percentage of 76% among the elders which was similar to regional and global data (22-23). Also, hypertension among older adults range from 33% in India to 78% in South Africa (24). Moreover, a Sri Lankan national survey reports hypertension among of 65% among adults aged >70 years (25).

Medication non-adherence among elders is a well-known issue around the world. Clinicians are proposed to consider patient, medication, health care provider, health care system and socio-economic factors to find personalized solutions to overcome the above issue (26). Assessment of medication

adherence among elders should also involve the caregiver (27). Further, the present study found medication adherence among elders to be positively associated with perceived social support which was supported by previous evidence (28). Moreover, prior studies have shown a significant association between social support and psychosocial well-being among elders (10). Satisfaction with emotional support among elders is associated with better self-reported health status (12). Also, social support and quality of life of elders are positively correlated (11).

The findings of a study conducted amongst a particular group of medical clinic attendees cannot be generalised. Morisky, Green and Levine Adherence Scale was used to assess medication adherence.

There are other more advanced adherence scales which need licensing and are costly. However, the present study had produced a fairly large participation and valuable data.

Conclusions & Recommendations

Hypertension was the most common NCD among elders attending the medical clinic. Therefore, preventive measures against hypertension need to be implemented among them, such as encouraging them to eat more fruits and vegetables, involving in physical activity on a regular basis, and avoiding the use of tobacco, reduce alcohol consumption, salt intake, saturated fats and trans fats. Also, majority had low or moderate levels of medication adherence and social support. A significant association for medication adherence was found with social support. Hence, medication adherence among elders could be improved by enhancing perceived social support. Thus, the focus should be on enhancing social support for elders by educating the significant other, family and friends. Further, findings of the study can be used as a guide to plan future similar surveys and health interventions among the elders. Moreover, a national survey among elders of Sri Lanka is essential to further emphasise our findings.

Public Health Implications

- The findings revealed that hypertension, diabetes mellitus, ischaemic heart disease, dyslipidaemia and bronchial asthma were the top five NCDs observed among the elders. Therefore, these should be the main focus of health interventions in this target group.
- High levels of medication adherence and social support were seen only in a small proportion of participants. A significant association for medication adherence was found with social support. Therefore, a greater emphasis should be placed on enhancing social support and medication adherence.

Author Declarations

Competing interests: The authors declare that they have no conflict of interest.

Ethics approval and consent to participate: Ethical clearance was obtained from the Ethics Review Committee of Faculty of Medicine, University of Ruhuna, Sri Lanka (2019/P/037). Prior permission for the data collection was obtained from the director of THK. Informed written consent was obtained from all participants.

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