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Stressful life events: association with physical and mental health conditions among older adults in Bhutan

Abstract

This cross-sectional study explored the prevalence of stressful life experiences (SLEs) and their relationship with health conditions among older adults in Bhutan. A face-to-face interview was completed at homes and community settings. A total of 337 people aged 60 to 101years were recruited from stapes, temples and local markets in four geographic regions. Measurements included checklists of Stressful Life Events (SLEs) and chronic health conditions, Kessler psychological distress scale (K10) and WHO-5 Wellbeing Index. Frequent back pain, memory decline, depression, mobility impairment, insomnia, and disease of the lungs were most common significantly different between the genders. Older adults in Bhutan had a complex variety of health conditions influenced by SLEs. Compared to participants with 1-5 SLEs, those with 8-14 SLEs had the higher odds of self-rating poor health by twofold (OR=2.07; 95%CI: 1.22-3.52). Comprehensive healthcare should address SLEs to mitigate their impact on health and improve overall quality of life and wellbeing of the person.

Keywords: stressful life events, health, older adults, Bhutan

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Introduction

Stress is a multidimensional and composite concept.[1] It is a major part of life, beginning from the prenatal period until the end of life.[2] Every individual experiences stressful events at some point in life.[3] However, the experiences of stressful events differ more consistently on types by gender rather than the overall number of stressful events.[4] The incidence of various life events also varies within social groups and from population to population.[5] Exposure to chronic stressful events significantly increases the vulnerability to a wide variety of physical and mental health outcomes.[6–8] SLEs involving death, suicide, or illness of a significant people including children, parents, or sibling may increase the risk of depression or anxiety.[9,10] Life events and morbidity related to chronic conditions are the common stressors for older adults[11] affecting both their physical and psychological health outcomes.[12] The extent to which stress contributes to poor health outcome is often difficult to determine. However, the impacts of adversities on health vary depending on how a person views it as threat or challenge.[13] SLEs therefore present major public health challenges. Till date, there is no evidence of systematic study on the prevalence of SLEs, and their influence on health outcomes among older adults in Bhutan. Therefore, this study was undertaken to determine the prevalence of SLEs and their probable influence on health outcomes. It is envisaged that findings from the study can serve as baseline information and inform programs and policies in investing for effective measures to reduce the impact of SLEs and promote health and wellbeing of older adults in Bhutan.

Methodology

Research design

This cross-sectional survey was designed to assess significant association between SLEs, self-reported general and specific health problems among older adults 60years and above in Bhutan. Data were collected between November 2014 to January 2015 by the principal researcher and trained research assistants (RAs).

Study sites and sampling scheme

Due to lack of prior information on SLEs and their impact on health outcomes among older adults in Bhutan, the calculation of the sample size was based on the number of variables.[14] The scoring was done for the whole 20 items used to assess SLEs. However, the categorization of the cumulative SLEs was not based on any standards, but purely done to illustrate the distribution of scores to be near to normal. With an approximation of 25 variables included for this study, sample was determined at 337 which are statistically valid. The study population consisted of 189 males and 148 females, aged 60years and over, residing in the four major commercial towns of Bhutan(Thimphu, Phuntsholing, Gelephu, and Samdrup Jongkhar) at the time of data collection. Convenient sampling was applied for this study. The principal investigator and the RAs, contacted the participants mostly at the stupas, temples, pagodas, towns, and food markets within the study sites. These places are generally used by older adults in Bhutan for socialisation. Participants able to communicate in any of the four main languages (Dzongkha, English, Tshanglalo, and Lhotshamkha), and has no sign and symptoms of cognitive or hearing impairment or not admitted to any institutions were qualified for the study.

Instrumentation

We applied Stressful Life Events Checklist assessing 20 different SLEs, and a modified version of general health checklist to assess the status of physical and mental health conditions. We also applied established WHO-5 Wellbeing Index and Kessler's Psychological

distress scale to measure emotional wellbeing and psychological distress. The instrument was pre-tested and showed satisfactory internal consistencies for general health conditions (Cronbach's alpha=0.71), SLEs(Cronbach's alpha=0.89), WHO-5 wellbeing Index (Cronbach's alpha=0.96), and Kessler 10(Cronbach's alpha=0.85).

Data collection and techniques

Six final year nursing students (four males and two females) from the Faculty of Nursing and Public Health, Khesar Gyalpo University of Medical Sciences of Bhutan, were recruited and trained as RAs. All the RAs were well versed and fluent in all the four languages assigned for data collection. A three day workshop was conducted by the principal investigator to carefully orient and train RAs on the use of survey instrument and the aims and objectives of the study. At the time of data collection, every effort was made to ensure respondents feel safe and comfortable. The data collection process for each interview included brief session to explain the aims and objectives of the study, information to obtain consent, right to non-participation, and maintenance of anonymity. Face-to-face interview were conducted in the place of choice convenient to the participants after obtaining verbal and written consent from each respondents.

Data analysis

The collected data was entered and analysed using SPSS(Statistical Package for Social Sciences) version 21 for windows. Findings are expressed in percentage, mean and standard deviation. Bi variate analysis was conducted using chi-square tests, one-way ANOVA, univariate logistic regression, and bi variate correlation tests. For all statistical tests, a significance level of α=0.05 was applied.

Ethical consideration

The Research Ethics Board of Health (Approval REBH/approval/2011/013) of the Ministry of Health, Bhutan, granted permission to conduct the study.

Results

Socio-demographic characteristics

A total of 337 consisted of 189(56.1%) elderly males and 148(43.9%) elderly females. The mean age was 71.5 ranged between 60 to 101years. A slight more than half 179(53.1%) were married. Most of the participants were Buddhist 304(90.2%). About 84.6% with almost all of the women 143(96.6%) had no formal education. Nearly half 154(46%) of the participants are currently employed (Table 1).

Prevalence of SLEs

As displayed in Table 2, death of a parent 327(97%) or child 230(68.2%), experience by a period of week or more unable to feed or cloth children 188(55.8%), loss of crops or animals 182(54%) or significant damage due to natural calamities 172(51%) severely impacting livelihood, children leaving household 167(49.6%) were the common reported SLEs. About three quarters (75%) of the SLEs experienced were more likely to be reported by females. Those experiences included death of spouse 81(54.7%) and children 118(79.7%), and parents 145(98.0%), increase in the number of arguments with spouse 70(47.3%), children leaving home 75(50.7%), damage of properties due to natural calamities 82(55.4%) or loss of crops impacting livelihood 86(58.1%), and a period of time unable to feed or clothe children 88(59.5%). Male participants reported higher experience of divorce/separation 26(13.8%), detention in the jail 5(2.6%), prevented from being able to earn livelihood 91(48.1%), and death or illnesses of close friends 79(41.8%). The difference in the experience of the death of a spouse (p-value<0.05) or death of a child(p-value<0.001) was found significant between the gender. Detention in the jail or other institution was the lowest recorded SLE 6(1.8%) in this study. The participants' experience of SLEs ranged from one to as high as 14 different SLEs. Nearly half 159(47.2%) reported 8 and above types of SLEs in life.

Table 1 Socio-demographic characteristics of the sample

Socio-demographic characteristics	N(%)
Age in Years	
60-69	143(42.4)
70-79	132(39.2)
≥ 80	62(18.4)
Gender	
Male	189(56.1)
Female	148(43.9)
Marital status	
Married	179(53.1)
Not married	26(7.8)
Widowed	132(39.2)
Religion	
Buddhism	304(90.2)
Not Buddhist	33(9.8)
Education level	
No formal schooling	285(84.6)
Some form of schooling	52(15.4)
Languages spoken	
Speak at least one of four languages	188(55.8)
Speak at least two of four languages	87(25.8)
Speak three to all four languages	62(18.4)
Work Status in the last 12months	
Employed	155(46.0)
Home maker	51(15.1)
Unemployed	131(38.9)

Note n=Number of participants; SD=Standard deviation

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Table 2 Prevalence of stressful life events (item wise) by gender

Individual and cumulative SLEs	Male n(%)	Female n(%)	Total n(%)	p-value
Death of a spouse?	74(39.2)	81(54.7)	155(46.0)	0.004*
Divorce or separation?	26(13.8)	16(10.8)	42(12.5)	0.416
Detention in jail or other institutions?	5(2.6)	1(0.7)	6(1.8)	0.235†
Death of a child?	112(59.3)	118(79.7)	230(68.2)	<0.001**
Death of a parent?	182(96.3)	145(98.0)	327(97.0)	0.522†
Major personal injury or illnesses?	72(38.1)	56(37.8)	128(38.0)	0.961
Being unable or prevented you from being able to earn livelihood?	91(48.1)	69(46.6)	160(47.5)	0.781
Major changes in the health or behaviour of a family member?	40(21.2)	36(24.3)	76(22.6)	0.491
Death or severe illness of a close friend?	79(41.8)	59(39.9)	138(40.9)	0.72
Major increase in the number of arguments with spouse?	76(40.2)	70(47.3)	146(43.3)	0.193
Son or daughter leaving household?	92(48.7)	75(50.7)	167(49.6)	0.716
Major conflict with family of spouse?	21(11.1)	22(14.9)	43(12.8)	0.305
Significant damage due to natural calamities(landslides, earthquake, flood, etc.)?	90(47.6)	82(55.4)	172(51.0)	0.156
Loss of crops or animals that has a severe impact on the livelihood?	96(50.8)	86(58.1)	182(54.0)	0.181
Physical assault such as being attacked, hit, slapped, kicked, and beaten up by family and non-family members?	28(14.8)	27(18.2)	55(16.3)	0.398
Period of a week or more when so poor that couldn't properly feed and clothe children?	100(52.9)	88(59.5)	188(55.8)	0.23
Period of time when couldn't afford to have children go to school?	57(30.2)	56(37.8)	113(33.5)	0.138
Theft or robbery of important possessions	19(10.1)	20(13.5)	39(11.6)	0.324
Worsening of relationships with children?	19(10.1)	20(13.5)	39(11.6)	0.324
Worsening of relationship with spouse?	12(6.3)	11(7.4)	23(6.8)	0.696
Cumulative Distal SLEs	-	-	-	0.252
5-Jan	56(29.6)	32(21.6)	88(26.1)	
7-Jun	48(25.4)	42(28.4)	90(26.7)	
≥ 8	85(45.0)	74(50.0)	159(47.2)	

Note n=Number of participants; *p-value<0.05; **p-value<0.001; †p-value by fisher's exact test

Self-rated general health, specific health conditions, and medications

As shown in Table 3, slightly more than half 179(53.2%) self-reported their general health to be good to excellent. However, about 207(61.4%) of the sample perceived deterioration in their general health conditions over the past year. Nearly half 148(45.8%) and 220(66.1%) self-reported experience of problems with walking and memory/concentration in the past four weeks, respectively. About 266(78.9%) of the participants visited health care centres in the past year and mostly received treatment from the medical doctors 247(92.9%). About 221(66%) reported being on medication over the past four weeks due to their health problems. Common health problems from highest to lowest were recorded for frequent back pain 226(67.1%), memory decline 204(61.4%), depression 155(46.4%), mobility impairment 153(45.7%), insomnia 142(42.4%), and pulmonary diseases 123(36.9%).

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Table 3 Self-report general health, health seeking behaviour, and specific health problems

General health and health seeking behaviour	n(%)
Self-report general health conditions	
Poor-fair	158(46.9)
Good-excellent	179(53.1)
Compared to year ago, you say your Health Condition is:	
Worse now	207(61.4)
About the same	109(32.3)
Better now	21(6.2)
Ability to walk in the last four weeks	
No problem with walking	175(54.2)
Have problem with walking	148(45.8)
Problems with memory in the past four weeks	
No problem with memory	113(33.9)
Have problem with memory	220(66.1)
Visited health worker in the past year	
Yes	266(78.9)
No	71(21.1)
Visited different health care workers	
Doctor	247(92.9)
Other health workers	19(7.1)
Specific health problems	
Frequent back pain	226(67.5)
Memory decline	204(61.4)
Joint disease	201(60.2)
Arthritis	197(60.1)
Visual impairment	191(57.4)
High blood pressure	135(52.7)
Fatigue	170(51.1)
Depression	155(46. 4)
Mobility impairment	153(45.7)
Insomnia	142(42.4)
Pulmonary disease	123(36.9)
Hearing problem	85(25.5)
Stomach ulcers	71(23.0)
Gout	54(16.4)
Musculoskeletal disorders	46(13.8)
Diabetes	34(12.8)
Skin problems	26(7.8)
Heart disease	16(6.8)
Liver problem	12(5.3)
Stroke	6(2.2)
Kidney disease	6(2.4)
Any type of cancer	4(1.5)

Note n=Number of participants; *p-value<0.05; **p-value<0.01

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Relationship between SLEs, health conditions, emotional wellbeing and psychological distress

Table 4 shows the prevalence and the relative odds of health problems by number of SLEs. Health conditions such as frequent back pain, pulmonary disease, diabetes, gout, joint disease, visual and hearing impairment, fatigue, mobility impairment, depression, insomnia, and memory decline are significantly associated with SLEs. When compared to participants with 1-5 SLEs, those with an experience of ≥8 SLEs had the higher odds of reporting frequent back pain(OR=3.15, 95%CI: 1.81-5.48), pulmonary disease(OR=5.15, 95%CI: 2.69-9.87), gout(OR=2.95, 95%CI: 1.24-7.00), joint disease(OR=2.80, 95%CI: 1.63-4.82), visual(OR=1.71, 95%CI: 1.00-2.91) and hearing impairment(OR=4.06, 95%CI: 1.94-8.47), fatigue(OR=2.28, 95%CI: 1.33-3.89), mobility impairment(OR=4.88, 95%CI: 2.73-8.71), depression(OR=5.54, 95%CI: 3.07-9.98), insomnia(OR=3.63, 95%CI: 2.05-6.42), or memory decline(OR=2.16, 95%CI: 1.25-3.74), and higher odds of self-rating poor health by almost twofold or more(OR=2.07; 95%CI:1.22-3.52). Furthermore, significantly lower wellbeing score (p-value <0.01) and higher psychological distress (p-value <0.001) was reported with higher cumulative SLEs (Table 5).

Table 4 Prevalence and adjusted relative odds of specific disease by SLEs

Specific health problems	Prevalence (%) OR (95%CI)	Number of stressful life events		
		1-5(n=89)	6-7(n=89)	≥ 8(n=159)
Back pain	Prevalence (%)	19	27.9	53.1
	OR(95%CI)	1.0(Ref.)	2.48(1.33-4.61)*	3.15(1.81-5.48)***
Pulmonary disease	Prevalence (%)	11.4	24.4	64.2
	OR(95%CI)	1.0(Ref.)	2.74(1.33-5.65)*	5.15(2.69-9.87)***
Heart disease	Prevalence (%)	18.8	25	56.3
	OR(95%CI)	1.0(Ref.)	1.36(0.29-6.33)	1.64(0.43-6.30)
High BP	Prevalence (%)	23	20.7	56.3
	OR(95%CI)	1.0(Ref.)	0.75(0.37-1.52)	1.34(0.73-2.46)
Stroke	Prevalence (%)	16.7	33.3	50
	OR(95%CI)	1.0(Ref.)	2.00(0.18-22.54)	1.72(0.18-16.88)
Diabetes	Prevalence (%)	26.5	5.9	67.6
	OR(95%CI)	1.0(Ref.)	0.19(0.04-0.91)	1.31(0.57-3.03)
Gout	Prevalence (%)	13	27.8	59.3
	OR(95%CI)	1.0(Ref.)	2.41(0.93-6.26)	2.95(1.24-7.00)*
Joint disease	Prevalence (%)	19.9	24.4	55.7
	OR(95%CI)	1.0(Ref.)	1.48(0.81-2.68)	2.80(1.63-4.82)***
Visual impairment	Prevalence (%)	23	23.6	53.4
	OR(95%CI)	1.0(Ref.)	1.00(0.55-1.81)	1.71(1.00-2.91)*
Hearing impairment	Prevalence (%)	11.8	23.5	64.7
	OR(95%CI)	1.0(Ref.)	2.20(0.96-5.03)	4.06(1.94-8.47)***
Stomach ulcers	Prevalence (%)	19.7	28.2	52.1
	OR(95%CI)	1.0(Ref.)	1.41(0.65-3.03)	1.50(0.75-2.99)
Liver disease/Hepatitis	Prevalence (%)	33.3	33.3	33.3
	OR(95%CI)	1.0(Ref.)	1.04(0.25-4.34)	0.57(0.14-2.38)
Skin problems	Prevalence (%)	19.2	34.6	46.2
	OR(95%CI)	1.0(Ref.)	1.85(0.59-5.75)	1.34(0.46-3.93)
Fatigue	Prevalence (%)	20.6	23.5	55.9
	OR(95%CI)	1.0(Ref.)	1.21(0.67-2.21)	2.28(1.33-3.89)**
Mobility impairment	Prevalence (%)	14.4	20.9	64.7
	OR(95%CI)	1.0(Ref.)	1.66(0.87-3.17)	4.88(2.73-8.71)***
Musculoskeletal	Prevalence (%)	23.9	21.7	54.3
	OR(95%CI)	1.0(Ref.)	0.85(0.34-2.12)	1.26(0.59-2.69)

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Table continued...

Specific health problems	Prevalence (%) OR (95%CI)	Number of stressful life events		
		1-5(n=89)	6-7(n=89)	≥ 8(n=159)
Depression	Prevalence (%)	13.5	20.6	65.8
	OR(95%CI)	1.0(Ref.)	1.74(0.90-3.35)	5.54(3.07-9.98)***
Insomnia	Prevalence (%)	16.2	20.4	63.4
	OR(95%CI)	1.0(Ref.)	1.35(0.70-2.58)	3.63(2.05-6.42)***
Memory decline	Prevalence (%)	22.1	23	54.9
	OR(95%CI)	1.0(Ref.)	1.00(0.55-1.80)	2.16(1.25-3.74)**
Poor health	Prevalence (%)	18.4	22.8	58.9
	OR(95%CI)	1.0(Ref.)	2.92(1.69-5.02)***	2.07(1.22-3.52)**

Note n=Number of participants; *p-value <0.05; **p-value <0.01; ***p-value <0.001; BP=blood pressure;

OR=odds ratio

Table 5 Relationship between wellbeing, psychological distress, and SLEs

Wellbeing and psychological distress	Number of stressful life events		
	1-5(n=89)	6-7(n=89)	≥ 8(n=159)
Wellbeing(M±SD)	15.4±4.77	15.2±4.25	13.5±4.50**
K10(M±SD)	15.1±6.30	14.4±4.27	17.5±5.73***

M±SD=Mean±Standard Deviation; *p-value <0.001

Discussion

This is a survey of 337 elderly people from four geographic locations of Bhutan aimed to describe the prevalence of SLEs and demonstrate how these experiences may be related to older adults' self-rated general health and their health conditions. Health problems such as frequent back pain, memory decline, visual impairment, disease of the joints, fatigue, depression, insomnia, elevated blood pressure reported were consistent with findings from earlier researches.[15,16] Such complaints indicate healthcare providers to be mindful of the need to adopt comprehensive approach while delivering health services to older adults. Almost all the participants have experienced at least one form of SLEs in their lifetime. Except for the experience of death of spouse and children significantly reported higher among female in this study, the experience of cumulative SLEs did not differ by gender. However experience of SLEs among gender differed by types consistent with the review of Hatch.[4] Individuals who experienced higher cumulative SLEs had higher odds of reporting specific health problems such as frequent back pain, diseases of lungs, joint, and gout; vidual and hearing impairment, fatigue, depression, insomnia, and memory decline by more than two folds. These findings were consistent with the previous studies where strong association was shown between severe stressful events with poor physical functioning, higher risk of disabilities, and poor mental health.[6–17] Likewise, as observed in the past study,[18,19] a significant positive relationship was also found between cumulative SLEs and psychological distress in this study. Evidence also suggests psychological correlates lead to increase of physical health complaints.[19] As majority of the participants reported being Buddhist in this study, teachings on the significance of compassion, impermanence, and the acceptance of reality such as death highly talked in the Buddhist world can help alleviate the negative influence of SLEs and promote desirable health outcomes. Furthermore, intervention such as mindfulness-based therapy may be implemented.

Conclusion and implications

Aside from death of parents and children, period of week or more unable to feed or clothe children, loss of crops or domestic animals, and significant damage on properties due to natural calamities were common reported SLEs. SLEs had significant positive relationship with both physical and mental negative health outcomes. This study has some limitations. Non-probability sampling technique was adopted for this study and therefore the findings cannot be generalized to the true population. While evidence suggests exposure to certain extent of stress are necessary for the survival of species as its exposure provides opportunity to develop toughness or experiences of control and mastery beneficial throughout life, such association was not examined in this study. A high proportion of respondents with no formal education may have compromised accurate self-report of their health conditions. Moreover, this study did not include clinical measurement of health status and was not able to gain access to medical records to verify self-report. This study has its own strength as well. This study was one of the first of its kind to investigate the prevalence of SLEs, common physical and mental health disorders and their significant association using systematic and scientific based approach. Findings suggest the need for further exploration of SLEs which may be different among the generations. This study also provides baseline information on which the future studies on similar topics could be compared. Findings strongly recommend the need for prevention and interventions to alleviate negative influence of SLEs on health and promote wellbeing and quality of life of a person.

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Declaration of conflict of interest

The authors declare no potential conflicts of interest with respect to the research, authorship, and publication of this article.

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