

ME-JAA

Middle East Journal of Age and Ageing

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Volume 13, Issue 1, February 2016

Chief Editor:

A. Abyad MD, MPH, AGSF, AFCHS
Email: aabyad@cyberia.net.lb

Publisher:

Ms Lesley Pocock
medi+WORLD International
Australia
Email: lesleypocock@mediworld.com.au

Editorial enquiries:

aabyad@cyberia.net.lb

Advertising enquiries:

admin@mediworld.com.au

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Editorial

Dr Abdul Abyad

Chief Editor



In this issue of the journal a number of papers discuss population issues in addition to rare cases. A paper from India looked at Prevalence of Chronic Non - Communicable Diseases in Urban Population of Nagaland. This study examines the effect of various socio-economic, demographic and cultural factors on the prevalence of chronic diseases among a representative sample population from Kohima and Dimapur towns of Nagaland. The data source used is a primary one collected through a household survey. In all, 4640 respondents were interviewed during data collection, out of which 2328 respondents were selected for the logistic regression analysis. The result indicates that characteristics like age, gender, marital status, occupation, family income, physical exercise, chew tobacco, smoking, consumption of alcohol and body mass index have significant effect on prevalence of chronic diseases. The study recommended that there is a need to strengthen the health care services of Nagaland in the field of preventive medicine.

A paper from Iran explored the mutual relationship between youth through ageing and their financial status in Tehran City. The youth, or so to say, age groups 18-29 are socio-economically very vulnerable due to the imbalance being faced by them as their expenditures are moving ahead of their income. Many young men and women while ageing, and in their 20s, are financially dependent on their parents' income. Such a scenario contributes to youth vulnerabilities in various ways. The article investigates how creating a balance between income and expenditure will result in improved and healthy ageing of the youth not only in Iran, but in other developing countries too. Iran, with a young population structure of about 33% at age groups 15-29, needs to do more to create secure and sustainable openings for its youth to bridge the income-expenditure gap. Among other problems contributing to youth unemployment or underemployment, is marriage delay for both

genders. In conducting the research, some 555 youth samples were examined through questionnaires in different districts of Tehran City. The research is based on the main hypothesis that: "reasonable permanent income determines the propensity to consume". Similarly, in the theoretical section of the research, relevant theories were consulted.

A paper from Pakistan looked at Guilt and its Impact among Care Givers: The Care Giver aspect remains unexplored in Pakistan. This study looks at Care Giver guilt and its impact on their life and ways to overcome it. A cross sectional study was conducted between July and September, 2015. A total of 400 Care Givers were interviewed. The demographic variables recorded include age, hometown, occupation and education status. Variables included duration of care giving, current Care Giver or Care Giver in previous five years, family member who received care, whether guilt occurred due to care giving. 400 Care Givers (215 men and 185 women) were interviewed. Majority (228) belonged to younger age group (18-30 years). They were mostly single, majority students giving/ had given care to their parents or grandparents. Most of them had or were giving care to their mothers (157) followed by father (105). The majority (256) were current Caregivers while the rest provided care within previous five years. A significant 186 respondents reported "Guilty" feelings due to deficiencies in Caregiving and 50% felt it negatively affected their life. 108 respondents were bothered by negative thoughts arising from "Guilty" feelings and 102 shared with someone, Mother (52) being most common. 170 respondents felt "Guilty" feeling among Caregivers, arising out of deficiencies in Caregiving is inevitable. 255 respondents felt that Health Care Providers should provide support to Caregivers. 167 respondents felt that Patients realize negative impact of "Guilty" feelings among Caregivers and try to mitigate. Current Caregiver responses are compared with those who provided Caregiving over previous five years. The authors concluded that significant guilt arises among Caregivers due to deficiencies in Caregiving. It is important for Health Care Providers to explore, identify and manage such "Guilty" feelings among Caregivers. Further research in this area is recommended.

A case report on general paresis is presented. The manifestations of central nervous system syphilis are unfamiliar to differential of patients with dementia to many physicians today as a result of the relative rarity of this condition. This is a report a patient with syphilis and dementia in an 88 year old Hispanic female. General Paresis is a progressive disease of brain leading to mental and physical deterioration. The clinical manifestations usually appear about 15-20 years after primary infection. It is important to keep tertiary syphilis in the differential diagnosis of dementia.

Guilt and its Impact among Care Givers: Results of Survey from Teaching Hospital in Karachi, Pakistan

Omar Irfan (1)
Ahmed Ansari (2)
Babar Irfan (3)
Waris Qidwai (4)

(1) *The Aga Khan University, Karachi, Pakistan, Class of 2017*

(2) *The Aga Khan University, Karachi, Pakistan, Class of 2018*

(3) *Jinnah Sindh Medical University, Karachi, Pakistan, Class of 2019*

(4) *Department of Family Medicine, Aga Khan University Hospital, Karachi, Pakistan*

Correspondence:

Dr. Waris Qidwai, MBBS, MCPS (FM), FCPS (FM), FRCGP (INT), FCGP(SL), MFPH(UK)

The Tajuddin Chatoor

Professor and Chairman, Department of Family Medicine

Service Line Chief, Family Health, Aga Khan University, Karachi

Stadium Road, PO Box: 3500, Karachi-74800, Pakistan

Tel: 92-21-3486-4842 (Office) 92-3332317836 (Cell)

Fax: 92-21-3493-4294

Email: waris.qidwai@aku.edu

ABSTRACT

Objective: The Care Giver aspect remains unexplored in Pakistan. This study looks at Care Giver guilt and its impact on their life and ways to overcome it.

Methods: A cross sectional study was conducted between July and September, 2015. A total of 400 Care Givers were interviewed. Participants were asked to fill out a consent form. Human rights were protected under the Declaration of Helsinki. Selection criteria included were age more than 18 years older and the participant was required to be a current or a former Care Giver of a family member. The demographic variables recorded include age, home town, occupation and education status. Variables included duration of care giving, current Care Giver or Care Giver in previous five years, family member who received care, whether guilt occurred due to care giving. Questions were included on ways of countering guilt and making care giving a better experience for both the care giver and the receiver. The data was entered using SPSS software. Chi-squared test was used to compare categories. P-value <0.05 was considered statistically significant. The questionnaire was administered in English and Urdu languages.

Results: 400 Care Givers (215 men and 185 women) were interviewed. The majority (228) belonged to younger age group (18-30 years). They were mostly single, majority students, giving/ had given care to their parents or grandparents. Most of them had or were giving care to their mothers (157) followed by father (105). The majority (256) were current Caregivers while the rest provided care within the previous five years. A significant 186 respondents reported "Guilty" feelings due to deficiencies in Caregiving and 50% felt it negatively affected their life. 108 respondents were bothered by negative thoughts arising from "Guilty" feelings and 102 shared with someone, Mother (52) being most common. 170 respondents felt "Guilty" feeling among Caregivers, arising out of deficiencies in Caregiving is inevitable. 255 respondents felt that Health Care Providers should provide support to Caregivers. 167 respondents felt that Patients realize negative impact of "Guilty" feelings among Caregivers and try to mitigate. Current Caregiver responses are compared with those who provided Caregiving over previous five years.

Conclusion: Significant guilt arises among Caregivers due to deficiencies in Caregiving. It is important for Health Care Providers to explore, identify and manage such "Guilty" feelings among Caregivers. Further research in this area is recommended.

Key words: Caregiving; Caregiver; Guilt; Patient dependency; Palliative care

Introduction

A care giver is a person who provides assistance to someone incapacitated. It can be a husband who has suffered a stroke; father with Parkinson's disease; a mother-in-law with cancer; a grandmother with Alzheimer's disease or a son with traumatic brain injury from a car accident. Informal caregiver and family caregiver are terms that refer to individuals such as family members, friends and neighbors who provide care to their dear ones without any financial benefit. Whereas formal caregivers are volunteers or paid care providers associated with a service system. (1, 2)

Emotions in care giving, especially guilt, have not received adequate attention in the research literature, even though they are frequently observed in caregivers (3). Guilt has been described as a feeling associated with the recognition that one has violated a personally relevant moral or social standard" (4). Guilt has also been suggested as a factor contributing to depression and distress in caregivers (5) and it is considered as a main emotion for caregivers, which may exacerbate their burden. (6)

More women than men are reported as Caregivers. An estimated 59% to 75% of Caregivers are reported as women.(7,8) Other studies have found women caregivers to be involved in most difficult caregiving tasks (i.e., bathing, toileting and dressing) when compared with their male counterparts, who are more likely to provide financial support, arrange care, and other less physically demanding tasks.(9,10) A number of studies have found female caregivers to be more likely than males to suffer from anxiety, depression, guilt and other symptoms associated with emotional stress due to Caregiving.(11,12)

Guilt arises because care giving can lead to psychological and mental health deterioration. Studies consistently report higher levels of depression and mental issues among Caregivers (13) Guilt can affect one's day to day life whether it's family, social or professional life. It is believed that sharing feelings can lead to reduced guilt. While researchers have long known that care giving can have deleterious mental health effects for Caregivers, research shows that Caregiving can have serious physical health consequences as well. Studies have found that caregivers may have increased blood pressure and insulin levels, (14) may have impaired immune systems(15) and may be at increased risk for cardiovascular diseases (16) among other adverse health outcomes. While care giving can be a very stressful situation for many caregivers, studies also show that there are beneficial effects as well, including feeling positive about being able to help a disabled loved one, feeling appreciated by the care recipient, and feeling that their relationship with the care recipient had improved.(8,17)

Based on identified need, we decided to study Care Giver guilt and its impact on their life and ways to overcome it.

Materials and Methods

A cross sectional study was conducted between July and September, 2015 at a teaching hospital in Karachi. A total of 400 Care Givers were interviewed. Participants were asked to fill out a consent form. Human rights were protected under the Declaration of Helsinki. Selection criteria included were age more than 18 years older and the participant was required to be a current or a former Care Giver of a family member. The demographic variables recorded include age, home town, occupation and education status. Variables included duration of care giving, current Care Giver or Care Giver in previous five years, family member who received care, whether guilt occurred due to care giving. Questions were included on ways of countering guilt and making care giving a better experience for both the care giver and the receiver. Questionnaire was a bilingual questionnaire and it had one open ended question. The data was entered using SPSS software. Chi-squared test was used to compare categories. P-value <0.05 was considered statistically significant. The questionnaire was administered in English and Urdu languages.

Results

400 Care Givers (215 men and 185 women) were interviewed. The majority (228) belonged to younger age group (18-30 years). They were mostly single, the majority students giving/ had given care to their parents or grandparents. Most of them had or were giving care to their mothers (157) followed by father (105). The majority (256) were current Caregivers while the rest provided care within the previous five years. (Table 1)

A significant 186 respondents reported "Guilty" feelings due to deficiencies in Caregiving and 50% felt it negatively affected their life. 108 respondents were bothered by negative thoughts arising from "Guilty" feelings and 102 shared with someone; Mother (52) being most common. (Table 2-A)

170 respondents felt "Guilty" feeling among Caregivers, arising out of deficiencies in Caregiving is inevitable. 255 respondents felt that Health Care Providers should provide support to Caregivers. 167 respondents felt that Patients realize negative impact of "Guilty feelings" among Caregivers and try to mitigate. (Table 2-B)

Tables 3, 4-A and 4-B (pages 8-10) compare respondent's responses of current Caregivers with those who provided Caregiving over previous five years.

We asked the Caregivers three ways to reduce care giver guilt. Common responses included improving quality of care, sharing responsibilities and feelings, professional help, financial and family support, using spiritual support including praying and reading Holy Books. Another interesting response was psychotherapy which we believe can be an important and very helpful way of countering guilt.

Table 1: Socio-demographic characteristics of study participants (n=400)

Variable	Frequency	Percentage
Age		
18-30	228	57
31-40	44	11
41-50	69	17.3
51-60	47	11.8
61-70	12	3
Gender		
Male	215	53.8
Female	185	46.3
Marital status		
Single	236	59
Married	164	41
Care status		
Current	256	64
Past five years	144	36
Duration of Care Giving		
Less than 6 months	122	30.5
6 months to 3 years	69	17.3
More than 3 years	209	52.3
Occupation		
Employed	183	45.8
Unemployed	9	2.3
Housewife/student	208	52
Education		
Up to primary	19	4.8
Matric & intermediate	180	45
Graduate	116	29
PG	85	21.3

Table 2-A: Individual responses of Participants on “Guilt” among Caregivers (n=186)

Questions/Responses	n	%
Guilt feelings affecting life negatively?		
Yes	93	50
No	74	39.8
Not sure	19	10.2
Suffer from anxiety and depression due to guilt?		
Yes	98	52.7
No	69	37.1
Not sure	19	10.2
Recurrent negative thoughts about Guilt bother you?		
Yes	108	58.1
No	63	33.9
Not sure	15	8.1
Do you have shared your “Guilt” feelings with someone?		
Yes	102	54.8
No	74	39.8
Not sure	10	5.4
If “YES” then you have shared “Guilt” feeling with ?		
Father	25	13.4
Mother	52	28
Spouse	39	21
Sibling	50	26.9
No response	20	10.8
Has sharing your “Guilt” feeling has made you feel better?		
Yes	109	58.6
No	42	22.6
Not sure	35	18.8
Have you sought professional help to relieve your “Guilt” feelings?		
Yes	34	18.3
No	133	71.5
No response	19	10.2
Has there been a reduction in “Guilt” feeling with time?		
Yes	99	53.2
No	56	30.1
Not sure	31	16.7
Area of your life adversely affected by your “Guilt” feelings?		
Family life	67	36
Professional life	37	19.9
Social life	41	22
Other	30	16.1
All	11	5.9

Table 2-B: Individual responses of participants on guilt among Caregivers (n=400)

Question	Yes	No	Not sure
Do you feel "Guilty" for not being able to provide care?	186 (46.5)	173 (43.3)	41(10.3)
Do you agree "Guilt" out of deficiencies on part of care giver is inevitable?	170(42.5)	123(30.8)	107(26.8)
Health care providers should provide support to Caregivers for anticipated "Guilty" feelings?	255(63.8)	69(17.3)	76(19)
Do you agree that family support reduces "Guilt" among Caregivers?	304(76)	45(11.3)	51(12.8)
Do you agree that that best Caregiving can be provided by close family members?	250(62.5)	129(32.3)	21(5.3)
Do you agree that Professional Caregiving cannot replace Caregiving provided by family members?	232(58)	121(30.8)	47(11.8)
Satisfaction out of providing Caregiving to close family member outweighs guilt arising due to deficiencies?	259(64.8)	60(15)	81(20.3)
Patient receiving Caregiving is aware of the "Guilty" feeling that arises in care giver during care giving and tries to mitigate it?	167(41.8)	111(27.8)	122(30.5)

Discussion

The results of this study are consistent with those of previous studies suggesting the relevance of guilt in care giving outcomes. We have found associations between guilt and important outcome variables such as depression, negative impact on life suggesting a significant relationship between guilt feelings and caregiver distress.

Men constituted the majority of the caregivers in this study. This is in keeping with the tradition of the area where male relatives constitute the majority of caregivers as they are the sole bread earners in our society in the majority of the families and take care of their family. On the contrary in past studies women Caregivers are usually more involved than male Caregivers in the roles in assisting and nurturing all family members, besides the care recipient. Given that women usually perceive more responsibility for caring for all family members, they are likely to be more vulnerable to guilt associated with the perception that they are neglecting other relatives due to care giving. In fact, women Caregivers have been found to report more role conflict, more caregiving costs and more interference with family and leisure time than do men (18).

In our study, 186 individuals experienced guilt during their care giving period. One possible explanation is the additional burden of providing for the needs of other members of the family by the male Caregivers leading to increasing guilt while taking care of their dear ones.

It was observed in our study that the majority of the care givers was single and was in their student life enrolled in universities for graduation or post graduation degrees. About 45 percent of our Caregivers were employed. It is believed that good income and socioeconomic status can have lesser guilt feelings in care giving.(19) One possible explanation for a low prevalence of guilt feelings can be the proximity and type of emotional relationship between Caregivers and the loved ones before the process of integration and adaptation to Caregiver role(20).

Guilt feelings are bound to have a negative impact on daily life which is apparent by observations in our study. About 93 Individuals in our study declared guilt feelings to be negatively affecting their lives. They suffered from anxiety and depression due to guilt feelings.

Regarding the relationship between higher levels of burden and the lower educational or expertise level of the Caregivers often link feelings of anxiety and distress that impact negatively on the care delivered, as well as in caregiver’s own health. (21)

Our study demonstrates that family support and sharing guilt feelings will have a positive influence on care givers. Only 34 care givers from the 186 who had guilt feelings said they would want a professional intervention in dealing with guilt. This aspect is an alien concept in our society. Caregiving issues tend to be kept within family circle. More than half care givers believed that best care giving can only be provided by close family members and professional support cannot replace it. Our society is a family oriented society with joint family systems.

Table 3: Participant's responses on Care Giving

Question	Current N (%)	Past 5 years N (%)	P-value
Caregiving provided to?			
Father	63 (24.6)	42(29.2)	0.335
Mother	103(40.2)	54(37.5)	
Spouse	23(9)	6(4.2)	
Grandparents	44(17.2)	30(20.8)	
Others	23(9)	12(8.3)	
Do you feel guilty for not being able to provide required care?			
Yes	122(47.7)	64(44.4)	0.579
No	106(41.4)	67(46.5)	
Not sure	28(10.9)	13(9)	
Guilt out of deficiencies is inevitable?			
Yes	115(44.9)	55(38.2)	0.342
No	73(28.5)	50(34.7)	
Not sure	68(26.6)	39(27.1)	
Health care providers should support Caregivers in addressing their guilt?			
Yes	165(64.5)	90(62.5)	0.992
No	43(16.8)	26(18.1)	
Not sure	48(18.8)	28(19.4)	
Do you agree that family support and sharing reduces guilt?			
Yes	190(74.2)	114(79.2)	0.132
No	27(10.5)	18(12.5)	
Don't know	39(15.2)	12(8.3)	
Best Caregiving is provided by close family members?			
Yes	150(58.6)	100(69.4)	0.091
No	92(35.9)	37(25.7)	
Not sure	14(5.5)	7(4.9)	
Professional help cannot replace Caregiving by close family members?			
Yes	141(55.1)	91(63.2)	0.112
No	79(30.9)	42(29.2)	
Not sure	36(14.1)	11(7.6)	
Satisfaction of providing Caregiving outweighs guilt due to deficiencies?			
Yes	166(64.8)	93(64.6)	0.631
No	41(16.0)	19(13.2)	
Not sure	49(19.1)	32(22.2)	
Patient is aware of "Guilty" feelings in Caregiver and tries to mitigate it?			
Yes	112(43.8)	55(38.2)	0.11
No	62(24.2)	49(34.0)	
Not sure	82(32.0)	40(27.8)	

Table: 4-A: Guilt and its Impact on Care Givers

Question	Current N (%)	Past 5 years N (%)	P-value
Does "Guilty" feeling negatively affect your life?			
Yes	62 (50.8)	31 (48.4)	0.201
No	51 (41.8)	23 (35.9)	
Don't know	9 (7.4)	10 (15.6)	
Do you suffer from anxiety and depression due to guilt?			
Yes	69 (56.6)	29 (45.3)	0.253
No	43 (35.2)	26 (40.6)	
Don't know	10 (8.2)	9 (14.1)	
Question	Current N (%)	Past 5 years N (%)	P-value
Do recurrent negative thoughts bother you that arise from Guilt?			
Yes	74 (60.7)	34 (53.1)	0.465
No	40 (32.8)	23 (35.9)	
Don't know	8 (6.6)	7 (10.9)	
Question	Current N (%)	Past 5 years N (%)	P-value
Do you share "Guilty" feelings with anyone?			
Yes	64 (52.5)	38 (59.4)	0.665
No	51 (41.8)	23 (35.9)	
Don't know	7 (5.7)	3 (4.7)	

Strength of our study included participants from diverse regions all over from Pakistan, with the majority from Karachi. And we had a full range of age groups ranging from 18 year olds to more than 60. Limitations included that our focus was not a particular disease or ailment. We recruited all Care givers who were giving care to their family members whether for diabetes, hypertension or an elderly having decreased mobility at home.

Conclusion

Significant guilt arises among Caregivers due to deficiencies in Caregiving. It is important for Health Care Providers to explore, identify and manage such "Guilty" feelings among Caregivers. Further research in this area is recommended.

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Table 4-B: Guilt and its Impact on Care Givers

Question	Current N (%)	Past 5 years N (%)	P-value
With whom you have shared "Guilt" feeling?			
Father	18(14.8)	7 (10.9)	0.067
Mother	38(31.1)	14(21.9)	
Spouse	19(15.6)	20(31.3)	
Sibling	31(25.4)	19(29.7)	
No response	16(13.1)	4(6.3)	
Does sharing "Guilt" feeling make you feel better?			
Yes	69(56.6)	40(62.5)	0.483
No	27(22.1)	15(23.4)	
Don't know	26(21.3)	9(14.1)	
Ever sought professional help to resolve "Guilt" feeling?			
Yes	26(21.3)	8(12.5)	0.294
No	85(69.7)	48(75.0)	
Don't know	11(9.0)	8(12.5)	
Has "Guilt" feeling reduced with time?			
Yes	65(53.3)	34(53.1)	0.826
No	38(31.1)	18(28.1)	
Don't know	19(15.6)	12(18.8)	
"Guilt" feelings arising from deficiencies of caregiving negatively impact you?			
Family life	43(35.2)	24(37.5)	0.959
Prof life	24(19.7)	13(20.3)	
Social life	29(23.8)	12(18.8)	
Other	19(15.6)	11(17.2)	
All	7(5.7)	4(6.3)	

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**Youth Ageing vs Income-expenditure Imbalance in Iran:
A Sociological Appraisal of Youth Ageing and Finance**

Mohammad Taghi Sheykhi

Correspondence:

*Dr. Mohammad Taghi Sheykhi,
Professor of Sociology,
Department of Social Science,
Alzahra University,
Tehran,
Tel: 009821-22859416,
Email: mtshykhi@alzahra.ac.ir, mtshykhi@yahoo.com*

ABSTRACT

The article explores the mutual relationship between youth through ageing and their financial status in Tehran City. The youth, or so to say, age groups 18-29 are socio-economically very vulnerable due to the imbalance being faced by them as their expenditures are moving ahead of their income. Many young men and women, while ageing, and in their 20s, are financially dependent on their parents' income. Such a scenario contributes to youth vulnerabilities in various ways. The article investigates how creating a balance between income and expenditure will result in improved and healthy ageing of the youth, not only in Iran, but in other developing countries too. Iran, with a young population structure of about 33% at age groups 15-29, needs to do more to create secure and sustainable openings for its youth to bridge the income-expenditure gap. Among other problems contributing to youth unemployment or underemployment, is marriage delay for both genders. In conducting the research, some 555 youth samples were examined through questionnaires in different districts of Tehran City. The research is based on the main hypothesis that: "reasonable permanent income determines the propensity to consume". Similarly, in the theoretical section of the research, relevant theories were consulted.

Key words: Youth ageing, Income-expenditure imbalance. Employment. Rising expectations. Lifestyle.

Introduction

The survey intends to investigate the financial status of the youth, i.e. age groups 18-29 of both genders, mainly in Tehran City which could represent the wider society of Iran. The survey aims to serve for the socio-financial empowerment of youth, and will eventually contribute to the implementation and realization of the youth who need effective and influencing policies to improve their quality of life.

Based on Iran's national census in 2011, approximately, youth include 33% or 25 million of the total population of the country. The demographic profile of the increasing youth at the age of employability and income indicates that a large number of the educated and skilled youth do not enjoy adequate financial and intellectual opportunities available to their counterparts in developed and newly-emerging economies. However, social and economic hazards and disparities have their effects on the quality of life of the young men and women of Iran. Such a situation makes the youth of both genders very vulnerable. High and rising figures of unemployment especially within the youth have contributed to serious concerns. Sociologically speaking such issues will cause long-term challenges if not addressed in time and in place.

The shortage of socio-financial conditions faced by the youth is mainly due to the inadequate knowledge of budgeting and financial challenges. To secure a financial future, the youth need to balance their income and expenditure, but it rarely occurs. Generally speaking, many young men and women in Iran who are at working age, but do not earn any monthly income, depend on their parents' income. Currently, the youth are facing newly-emerging controversies stemming from rapid social change, new lifestyles and modes of life. While all of them need more income resources, many youth cannot afford them, and as a result, remain destitute and disappointed. Such youth being deprived of jobs and income, cannot easily start their marital life which has led to various socio-cultural problems within the youth all over the country. Delay in marriage has widely contributed to low fertility rate, and for many, it has resulted in infertility. Apart from such social impacts, the scenario creates various vulnerabilities in the economy. As agreed, for a more sustainable economy, the personal saving rates must increase. However, it is worth mentioning that low personal savings by the youth would be detrimental to a country's economy. On the other hand, making sound personal investment decisions by the youth would have a positive impact on the Iranian economy, and would lead to economic prosperity as a whole.

However, investing in children and youth would transform their lives and their healthy development. It will also lead to their economic and social progress. Similarly, planning for the youth income would dynamize the mainstream of the economy, and the vicious circle will continue. Creation of an enabling environment in which young men and women get their rights, gives them access to constructive information and educational services, which would eventually pay the youth and the society. While that would empower social and economic processes, the youth will also realize their potential as agents for social change and development. Therefore, raising the profile of the young men and women in Iran by providing them with income and occupa-

tions, would lead to positive returns for the youth as well as the society. Such a motivation will increase the social responsibility of the youth, followed by their improved quality of life.

However, promoting the financial capabilities of young men and women in Iran will first of all prevent them from vulnerabilities and many other deprivations. Decentralization of planning and investment will highly help the youth get occupations and access to regular income to meet their expanding needs. Notwithstanding, creation of balance between the income and expenditure of the youth will result in their improved health status, social networks, their jobs and earnings, their subjective well-being, the environment quality, their housing and their quality of life as a whole. Though the young generation under the age of 30 prefer to have paid jobs, very few succeed, many remain unsuccessful, and some are engaged in self-employed jobs, or so called free jobs.

While money is not expected to purchase happiness, it is an important means to achieve higher standard of living, a decent life, and thus greater well-being, and the absence or shortage of which will result in socio-economic challenges. Youth net-adjusted disposable income is the amount of money that a young man or woman earns each month/year after taxes and transfers. In the present article, it refers to the money available to a young man or woman for spending on goods and services. Holding an occupation includes many important benefits such as: providing a source of income, sustaining social inclusion, reaching one's own aspirations and improving skills and competencies, with special reference to the youth.

Methodology

The research techniques used in the present research to yield the intended social data is based on a mixed-method strategy of investigation. While the main technique of study in the present research is administering questionnaires, the researcher also used interview method as per need. In addition, documents and books were also used as major sources of inquiries. In the theoretical section, the author has referred to relevant theories, approaches and literature reviews. In completing the research, 555 samples of both genders were consulted to produce a reliable and valid work. The research is based on the main hypothesis that: "reasonable permanent income determines the propensity to consume". However, the researcher used both the quantitative and qualitative methods to reflect the financial conditions of the youth in terms of income and expenditure in a changing urban society.

Theoretical Perspective

Youth unemployment that leads to income problems, is often seen in terms of moral crisis. It is in practice, when jobs are extremely hard to obtain. However, more than 40 percent of the world's unemployed are youth (United Nations 2002). In most parts of the world, youth unemployment exceeds that among older people (O'Higgins:2001). However, many young people are underemployed, meaning that they have insufficient work to keep them fully occupied which means that they earn inadequate income to be able to meet their basic needs. They may also usually have poor-quality employment in the informal sector. There

are many views why unemployment is high within the youth. Some stem from population, but in addition, there are many more reasons responsible for the problem (O'Higgins:2001). Youth unemployment rates are much in conjunction with adult unemployment as well as the conditions of economic growth. However, youth labor force cannot compete for occupations that require skills at high levels and maturity as far as experience is concerned. Therefore, such criteria are valued and counted for in employment occasions.

Similarly, youth unemployment/income issue is much subject to economic decline. For example, the labor market has structurally declined in Central Asia, and there are uncertain prospects for school leavers (Falkingham:2000). If we go back to the Soviet era, in a country like Kazakhstan, there were a lot of opportunities available to youth who left schools and universities, especially for those with parents of high social standing (Rigi: 2003).

As far as the developing countries are concerned, unemployment is concentrated among selected social groups of the youth; especially the poor. However, the gender distribution of unemployment is not very clear among the youth. In this regard, women usually have lower chances as compared with men. For example, in Jamaica and Iran where educational attainment is higher among females than males, women are more subject to unemployment (O'Higgins:2001). In societies where education gives self-respect to the youth such as India, they are not willing to work as laborers (Jeffrey et al., 2003). As a result, youth unemployment can lead to marginalization, exclusion, frustration, low self-esteem and sometimes to acts that create burdens on society (United Nations 2002). However socio-economic change has contributed to a fresh occasions/opportunities that enable youth of both genders to be selective in choosing their employment (Kelly:1999).

The state of having sufficient independent income to live on, is an important indicator of youth independent lives, and without which challenges will emerge (Cummuta:2009). However, if the youth can generate income that is greater than their expenditures, then they would feel comfortable and happy. To harmonize income with expenditure, and to prevent bankruptcy, simple living is advised, or other strategies to reduce expenses. Based on passive source of income or unearned income such as rentals, or interest from a bank account etc., if stopped, income and expenditure do not cope with each other, and thus challenges will emerge (Retrieved :2013).

Strain theories also predict a link between economic deprivation and youth violence (Merton:1949). By that is meant; absence of income, or an unbalanced income- expenditure relationship is very likely to lead to rebellion and other social vulnerabilities. Similarly, based on economic theories of crime, poverty lays the ground, while inequality serves to further exacerbate the situation (Becker:1968; Block and Heineke:1975; Ehrlich: 1973).

Income and employment theory represents the level of expenditure by the people in the course of time. Keynes also offered new thinking on income and employment theory with the publication of General Theory of Employment, Interest and Money (1936). Based on this theory, transactions are two-sided, and that is: one

person's income is another person's expenditure. Therefore, fall in incomes further reduces consumer demand, and it eventually reduces the rate of savings (Encyclopedia Britannica: 2014).

Consumption function as a response to income creates economic transactions, economic prosperity, and a state of tranquility for the youth. Consumption is based on current income, and ignores potential future income (D'Orlando:2010). Consumption is also relative to production. Therefore, consumption or somehow expenditure has to be analyzed in the context of a person's production/income (Mincer:1963). As developing countries are copying the consumption patterns and modes of the developed economies, that will create a shortage that the earth cannot fulfill. Therefore, affordable policies and strategies need to be adopted and practiced.

Modernization theory has multi-dimensionally affected the youth with special reference to those of the developing world through education, industrialization, urbanization etc. (Rostow:1960). This process is rapidly continuing in new dimensions such as the electronics and communications. Mass education is assessed as both a requirement for, and an indicator of modernity (Inkeles and Smith:1974). Education as a platform has largely transformed the value system of the youth, their socio-economic expectations, and their lifestyles. Such circumstances motivate the youth to have access to adequate incomes leading to new expenditures in terms of goods and services. Human capital theory which is known as a drive for economic growth originates from modernization theory. On the contrary, lack of skills and education among the young labor force in the Third World countries is believed to hold back productivity. Therefore, children are a resource to be invested in (UNICEF:1996). As a result, both education and technologies such as schools and immunization contribute to and improve the health of the future workforce.

Policies inspired from modernization have large impacts on youth apart from schooling and immunization. For example, investment in industrialization led to rapid urbanization which is gradually followed by new expectations and new ways of life. In modern times, the youth expect formal employment that is not always fulfilled. Under such circumstances the youths' income and expenditures do not remain balanced.

Socialism and dependency theory

Some of the countries that obtained independence from 1950 onwards, partly rejected the Western-style of development, and instead chose the policies/ideologies based on Marxist thoughts and institutions. These countries are ranked as China, Chile, Cuba and Ethiopia. Though it was implemented differently from nation to nation, in this process, land, mineral resources and industries were nationalized, and foreign trade and investment brought under state control, followed by rigid price controls (Kilmister: 2000). The purpose of such development was to benefit the lower classes, and not just the owners of capital. In that, youth employment and income were assured and fulfilled according to the governing standards. Based on Marxian thought and dependency theory, social investment on children and youth is highly emphasized and desirable. In that, children are more considered legitimate subjects of government intervention. They are considered as a nation's future.

Youth and Housing

In Iran and especially in Tehran City, housing costs absorb the largest part of the household budget, and thus, it represents the heaviest expenditure for a large number of individuals and families especially the youth. Therefore, it is currently a challenging issue for the youth; even preventing them from marrying and starting a married life. Similarly, as the joint family system is not there anymore, and generally a nuclear family system is prevalent, the new norms and values are not compatible with the youth income-expenditure relationship. In the past three decades Iran's youth number has been increasing beyond the socio-economic carrying capacity of the country, and beyond the necessary infrastructure. This emerging gap has created numerous challenges and issues for the youth. However, low-income youth are pulled towards illegal activities and other socio-economic vulnerabilities. Under the slow economic growth in Iran in the past three decades, a large number of young men and women of age groups 18-29 are unemployed. They are the persons who are not currently working, but are willing to do so.

Generally, females have low labor force participation chance, and that contributes to shortage of income within them, leading to eventually delay in marriage. Therefore, the scenario makes young females vulnerable in different respects. Nonetheless there are high hopes and prospects for more female participation and employment in urban areas with special reference to university-educated females under the recent landmark deal with world powers and the socio-political developments in Iran.

Humans as social creatures are highly dependent on social networks, and if strong, they can have better access to jobs, services and various opportunities. On the contrary, lack of poor social networks may lead to limited economic opportunities, and ultimately the appearance of isolation. Similarly, the emerging conditions could result in failure of personal aspirations. Similarly, education and training are two elements necessary for the youth development and economic well-being. The above-mentioned factors have a direct impact on the quality of youth housing.

The importance of housing needs no emphasis; it is one of our primary needs of life (Rao,2001:7). Housing issues in Iran are associated much with social and economic conditions of the country. Poverty being a multi-dimensional problem, and a major challenge all over the globe, its solutions are country specific (Uberoi, 2003:6). Therefore, an effective strategy is needed to tackle the problems of development and poverty, beginning with economic conditions of the youth, their resources and productivity. To reach the objective, youth employment and income-generating programs need to be put on the agenda.

Youth and Change

Youth are described as agents of change, or so to say, the "barometer of social change". They are subject to any changes at world level, and respond most effectively to them. However, the generational divide should not become a social divide. The new society must seek to prevent exclusion, integrate the young and the old, and the rich and the poor (Tiong:2004). Therefore, young people are expected to establish themselves in a new social context, and deal with any vulnerability, the new world provides new possibilities as well as threats. However, one of the challenges as recognized, being faced by the youth in modern times is the income of the youth in countries like Iran with a very young population structure with the median age of 28.3 in 2015 (Consus:2011). Iran's human development index (HDI) has largely changed in the past recent decades. In that, greater number of youth have obtained university degrees at graduate and post graduate levels, but income and employment opportunities have not developed as such. The gap created, has resulted in income and expenditure problems within the youth.

Literature Review

As a result of a population explosion, the urban areas such as Tehran in Iran are facing income and employment concerns within the increasing youth. Like many other developing countries, Iran is also a victim of rapid increase in its urban population resulting in employment chaos. The scenario has contributed to income and expenditure challenges with special reference to the young population age group of both genders. However, the emerging phenomenon has brought about various vulnerabilities. Factors responsible for the emerging situation include numbers, density and heterogeneity of population (Wirth:1938). Though in the past only young men expected occupations and income, nowadays young women also expect the same, and the shortage of which is a matter of concern for them too. Therefore, this is where the challenges and complications of income and expenditure start from within the youth in Iran. Thus, if the fundamental features of urban environment are not in place, a range of urban social behaviors would emerge - leading to social problems caused by the shortage and imbalance of income and expenditure within the youth.

According to social mobility theory (Lispset and Bendix: 1959), though stability of modern industrial society is maintained, yet controversies emerge due to increasing job seekers with special reference to the youth in urban areas. Another perspective denotes that technology is responsible for the nature of social relations including income, employment and housing conditions (Turner, 2000:341). However, the social interactions of the individuals are influenced by their economic ability. Likewise, economic sociology identifies the relationship between economic conditions of the youth and their income-expenditure proportion (Smelser et al.1994).

Figure 1: The impacts of structural adjustment policies on youth

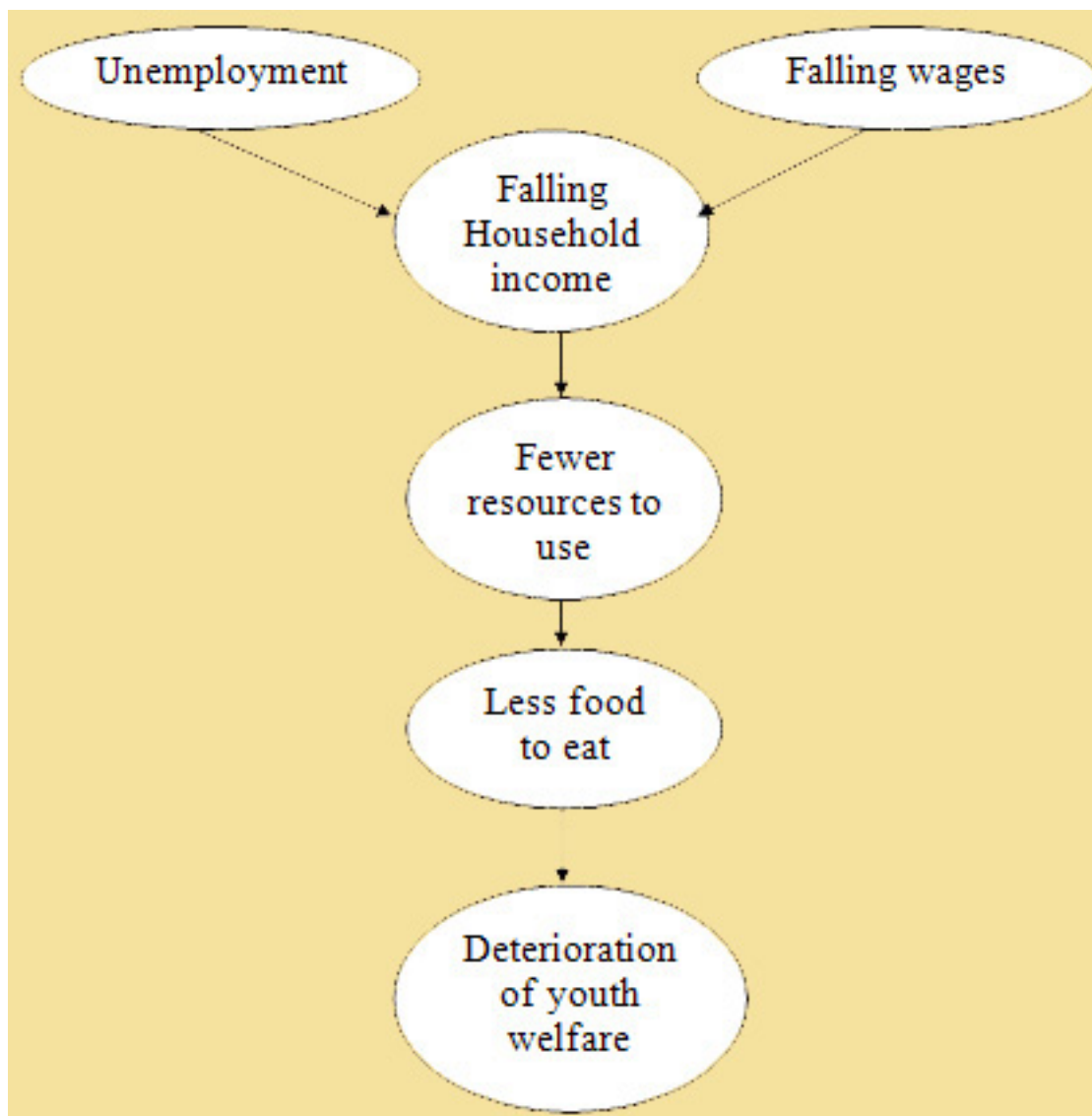


Table 1: Classification of Youth by Age and Gender in Tehran City

Age	Total		Total		Females	
	Number	%	Number	%	Number	%
Total	555	100	211	38	344	62
Age 15-17	32	5.8	19	3.4	13	2.3
Age 18-20	121	21.8	26	4.7	95	17.1
Age 21-23	160	28.8	53	9.5	107	19.3
Age 24-26	121	21.8	49	8.8	72	13
Age 27-29	121	21.8	64	11.5	57	10.3

Abridged Table 2: Classification of Youth by Gender and Occupational Status in Tehran City

Gender/Age	Total		Employed		Unemployed		Part Time Employed	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	267	48.1	244	44	44	7.9
Males 15-29	211	38	102	18.3	93	16.7	17	3
Females 15-29	344	62	165	29.8	151	27.2	27	4.9

Abridged Table 3: Classification of Youth by Gender, Age and Marital Status in Tehran City

Gender/Age	Total		Married		Single	
	No.	%	No.	%	No.	%
Total	555	100	178	32.1	377	67.9
Males 15-29	211	38	68	12.2	143	25.8
Females 15-29	344	62	110	19.9	234	42.1

Abridged Table 4: Classification of Youth by Gender, Age and Educational Level in Tehran City

Gender/Age	Total		Below High School Graduation		High School Graduation		Associate's Degree		BA./BBs		Mr./Ms.		Ph.D.	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Total	555	100	60	10.8	236	42.5	85	15.3	151	27.2	19	3.4	4	0.7
Males 15-29	211	38	23	4.1	90	16.2	32	5.8	57	10.3	7	1.3	2	0.3
Females 15-29	344	62	37	6.7	146	26.4	53	9.5	94	16.9	12	2.1	2	0.4

Abridged Table 5: Classification of Youth by Gender, Age and Educational Status in Tehran City

Gender/Age	Total		Married		Single	
	No.	%	No.	%	No.	%
Total	555	100	272	49	283	51
Males 15-29	211	38	103	18.6	108	19.4
Females 15-29	344	62	169	30.4	175	31.6

Abridged Table 6: Classification of Youth by Gender, Age and their Accommodation Status in Tehran City

Gender/Age	Total		Living with Family		Living Alone		Living in Hostel	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	389	70.1	138	24.9	28	5
Males 15-29	211	38	148	26.6	52	9.5	11	1.9
Females 15-29	344	62	241	43.4	86	15.4	17	3.1

Abridged Table 7: Classification of Youth by Gender, Age and How They are Financially Supported in Tehran City

Gender/Age	Total		Self		Family		Other	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	193	34.8	331	59.6	31	5.6
Males 15-29	211	38	73	13.2	126	22.7	12	2.1
Females 15-29	344	62	120	21.6	205	37	19	3.5

Abridged Table 8: Classification of Youth by Gender, Age and Their Entry Years to Work in Tehran City

Gender/Age	Total		Less than 1 Year		1 to 2 Years		3 to 5 Years		More than 5 Years	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total	555	100	246	44.3	98	17.7	126	22.7	85	15.3
Males 15-29	211	38	94	16.4	37	6.7	48	8.6	32	5.8
Females 15-29	344	62	152	27.5	61	10.9	78	14.1	53	9.5

Abridged Table 9: Classification of Youth by Gender, Age and the Year of Unemployment from the Time They were Entitled to Work in Tehran City

Gender/Age	Total		Less than 1 Year		1 to 2 Years		3 to 5 Years		More than 5 Years	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total	555	100	333	60	121	21.3	58	10.5	43	7.7
Males 15-29	211	38	127	22.8	46	8.3	22	4	16	2.9
Females 15-29	344	62	206	37.2	75	13.5	36	6.5	27	4.8

Abridged Table 10: Classification of Youth by Gender, Age and the Number of Siblings in Tehran City

Gender/Age	Total		1 Sibling		2 Siblings		3 Siblings		4 and more Siblings	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total	555	100	118	21.3	158	28.5	117	21.1	162	29.2
Males 15-29	211	38	45	8.1	60	10.5	44	8	62	11.1
Females 15-29	344	62	73	13.2	98	17.6	73	13.1	100	18.1

Abridged Table 11: Classification of Youth by Gender, Age and Rate of Satisfaction with Life in Tehran City

Gender/Age	Total		Very much		Much		Little	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	94	16.9	292	52.6	169	30.3
Males 15-29	211	38	36	6.4	10	1.8	64	11.6
Females 15-29	344	62	58	10	181	32.6	105	18.9

Abridged Table 12: Classification of Youth by Gender, Age and Passage of Life Marginally in Tehran City

Gender/Age	Total		Yes		No		To Some extent	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	95	17.1	283	51	177	31.9
Males 15-29	211	38	36	6.5	108	19.4	67	12.1
Females 15-29	344	62	59	10.6	175	31.6	110	19.8

Abridged Table 13: Classification of Youth by Gender, Age and State of Health of the Respondents in Tehran City

Gender/Age	Total		Healthy		To Some extent Healthy		Sick	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	503	90.6	42	7.6	10	1.8
Males 15-29	211	38	191	34.5	16	2.9	4	0.7
Females 15-29	344	62	312	56.2	26	4.7	6	1.1

Abridged Table 14: Classification of Youth by Gender, Age and State of Health Insurance in Tehran City

Gender/Age	Total		Holding Insurance		Without Insurance	
	No.	%	No.	%	No.	%
Total	555	100	450	81.1	105	18.9
Males 15-29	211	38	171	30.8	40	7.2
Females 15-29	344	62	279	50.3	65	11.7

Abridged Table 15: Classification of Youth by Gender, Age and Average Transportation Expenditures in Tehran City

Gender/Age	Total		Less than \$100		\$ 100-149		\$ 150 and More	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	442	79.6	82	14.8	21	5.6
Males 15-29	211	38	168	30.3	31	5.6	12	2.1
Females 15-29	344	62	274	49.4	51	9.2	19	3.5

Abridged Table 16: Classification of Youth by Gender, Age and Financial Dependency on Family in Tehran City

Gender/Age	Total		Not at all		To Some extent		Much		Entirely	
	No.	%	No.	%	No.	%	No.	%	No.	%
Total	555	100	132	23.8	172	31	91	16.4	160	28.8
Males 15-29	211	38	73	13.2	81	14.6	19	3.4	38	6.8
Females 15-29	344	62	59	10.6	91	16.4	72	13	122	22

Abridged Table 17: Classification of Youth by Gender, Age and Regular Income Generation in Tehran City

Gender/Age	Total		Sufficiently		To Some extent		Not at all	
	No.	%	No.	%	No.	%	No.	%
Total	555	100	116	20.9	191	34.4	248	44.7
Males 15-29	211	38	44	7.9	73	13.1	94	17
Females 15-29	344	62	72	13	118	21.3	154	27.7

Income-Expenditure Equilibrium

Income ladder of female respondents respectively indicates 137 (24.7%) as having no monthly income, 38 (6.9%) having monthly income equivalent to less than US \$ 150, some 29 (5.2%) drawing monthly income equivalent to US \$ 150 and 199. Another group of female respondents 27 (4.8%) people asserted to draw monthly income equivalent to US \$ 200-249, followed by another group of respondents 20 (3.6%) drawing monthly income equivalent to US \$ 250 and 299. The sixth column of the young respondents 16 (2.9%) people indicate drawing monthly income equivalent to US \$ 300 and 349, followed by another group of female respondents 19 (3.5%) declaring their monthly income equivalent to US \$ 350 and 399. The ninth income group 27 (4.9%) indicates monthly income equivalent to US \$ 400 and 449, followed by 30 (5.5%) of female respondents drawing monthly income equivalent to US \$ 450 and above.

Out of 211 (38%) males, 69(12.5%) asserted to bear monthly expenditure of equivalent to less than US \$ 150, followed by 54 (9.8%) bearing monthly expenditures of US \$ 150 and 199. Similarly, 30 (5.4%) of the respondents reported to spend equivalent to US \$ 200 and 249 as their monthly expenditure, followed by 22 (4%) respondents who asserted to spend equivalent to US \$ 250 and 299. Another group of young respondents 10 (1.8%) expressed to spend equivalent to US \$300 and 349 as their monthly expenses. The sixth group of youths comprising 12 (2.1%) declared to spend equivalent to US \$ 350 and 399 as their monthly expenditure, followed by another group of 5 (0.8%) of respondents who declared to spend US \$ between 400 and 449 as their monthly expenditure. The last group of 8 (1.5%) respondents declared to spend equivalent to US \$ 450 and above as their monthly expenditure.

Discussion

The chain of unemployment, falling wages, falling income, and as a result, fewer resources to use, less food to eat, would lead to deterioration of youth welfare. Income-expenditure approach has a direct relationship with the quality of life of all the people; especially with that of the youth. Any change in price levels affect expenditure, and as a result, the economy as a whole. Any increase in income results in consumption behavior. Therefore, the positive income-expenditure improvement leading to the created process, may continue. Sociologically speaking, the demographic and economic trends need to be set in such a way that the youth of both genders when reaching working age, could get the chance of having access to income. If it happens so, then many possible challenges could be avoided, followed by

a downward trend of vulnerability within the youth in a given society.

It is the inequality in income and expenditure or so to say, the gap between saving and investment that contributes to changes in the price levels leading to the youth poverty. The present research explores how income-expenditure relationship is influenced by genders, age, cultural differences and class. However, deprivation stemming from unattended needs may lead the youth to committing crimes. Hence, income-expenditure relationship needs to be carefully and positively considered. Similarly, social disorganization caused by factors such a poverty, ethnic heterogeneity and residential mobility somehow affects the income-expenditure relationship leading to dissatisfaction within the youth not only in Iran, but in other societies as well. It may be so discussed that the economic deprivation of the youth may result in youth violence, poor family health, community movements and the like. On the contrary, some social researchers such as Allen (1996) and Messner (1982) have found negative relationship between poverty and crime; i.e., high levels of poverty are associated with lower crime levels.

As a whole, to avoid economic deprivation and bring about a reasonable relationship between income and expenditure of the youth, direct creation of jobs is a pressing point - an attempt to raise ways and lessen earning disparities, especially those related to gender and race (Currie:1996). However, if consumption function is to maintain well, income factor must be ahead of that. Iran, with a young age structure needs to invest much on entrepreneurship so as to create income for its youth of (15-29); that is about 32% of the entire population (Census:2011).

Conclusion

Income-expenditure equilibrium creates what is known as a circular flow of income, and if the flow is not there, many needs cannot be met. Therefore, welfare policies must be so designed leading to adequate income to meet the increasing expenditure with special reference to the youth not only in Iran, but in other countries as well. Reasonable and adequate income needs to be earned by the youth in order to meet the increasing expenditures on food, clothing, housing, education, health, leisure etc. Welfare and earning needs of the youth need to be prioritized. That would lead the youth to be more productive and reliant, and if not, they would be deprived and vulnerable. However, if the process continues, the entire social health will be adversely affected. Since income- expenditure equilibrium is highly subject to state policies, or so to say, socio-economic policies, thus reasonable and applied policies need to be designed and put into practice.

As far as the youth in Iran are concerned, creation of a balance between their income and expenditure would result in their improved health status, social network, their subjective well-being and their quality of life as a whole. Similarly, access to an adequate source of income will enhance the youths' self-esteem and improve their skills and competencies. Though the main reason for the youth unemployment is supposed to be population increase, yet other reasons are responsible for the problem. Similarly, youths' low-income and unemployment can lead to their marginalization, exclusion, frustration and their low self-esteem. To prevent bankruptcy, harmonization of income with expenditure is suggested, and likewise simple living is advised in addition to other strategies to reduce expenses. In the modern age, the youth expect formal employment that is not always fulfilled, and that is where the youths' income and expenditures do not remain balanced. It is worth mentioning that due to demographic change, and as a result increase of young population beyond the socio-economic carrying capacity, and the adequate infrastructures, emerging disequilibrium between income and expenditure is inevitable. Income-expenditure cleavage has also contributed to marriage delay in Iran in the past two decades with a focus on women leading to emerging problems. Similarly, as a result of modernity and new lifestyles within young women, they too expect occupations and independent income earnings as men, and the shortage of which is a matter of concern for the educated female youth at the time being. At the end, if the consumption function is to maintain in good order, income factor, or so to say, income generation needs to function ahead of expenditure.

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Prevalence of Chronic Non - Communicable Diseases in Urban Population of Nagaland

Prasanta Barman

Correspondence:

Prasanta Barman

Kohima Science College (Autonomous), Jotsoma, Kohima, Nagaland, India

Phone no. +919436016594

Email: *bprasanta@gmail.com*

ABSTRACT

Background: It has been observed from several studies, that the deaths due to communicable diseases have drastically gone down during the last few decades, whereas deaths from chronic non-communicable diseases like cardiovascular diseases, cancer, chronic respiratory disease, and diabetes are alarmingly increasing.

Objectives: This study examines the effect of various socio-economic, demographic and cultural factors on the prevalence of chronic diseases among a representative sample population from Kohima and Dimapur towns of Nagaland.

Materials and Methods: The data source used is a primary one collected through a household survey. In all, 4640 respondents were interviewed during data collection, out of which 2328 respondents were selected for the logistic regression analysis.

Results and Conclusion: The result indicates that characteristics like age, gender, marital status, occupation, family income, physical exercise, chew tobacco, smoking, consumption of alcohol and body mass index have significant effect on prevalence of chronic diseases. The study recommended that there is a need to strengthen the health care services of Nagaland in the field of preventive medicine.

Key words: Chronic disease, prevalence of disease, logistic regression.

Introduction

Chronic non-communicable diseases are the leading causes of both disability and death worldwide and they strike hardest at the world's low- and middle - income populations [1]. In the Indian context, several studies have documented the prevalence of chronic diseases in India too [2]. An analysis of chronic diseases with regard to socioeconomic and demographic factors has been attempted by quite a few researchers like, Omran (1971) [3], Lowery et al. (1996) [4], Berendregt and Bonneux (1998) [5], Lopez (2006) [6], Gupta et al. (1995) [7], Das, Sanyal and Basu (2005)[8], Choudhury et al. (2009) [9] etc.

Various hypotheses have been put forward to explain the rising trend of chronic diseases, and consequence of urbanization is one of them. Though biological factors might have influences on chronic diseases, a majority of chronic diseases are due to lifestyle behaviours [8]. On the basis of this we hypothesise the prevalence of chronic diseases in urban areas of Nagaland.

Nagaland, the sixteenth state of the Indian union, is one of the smallest states of India. The state consists primarily of tribal population with 96% household heads belonging to schedule tribal communities [10]. The major tribes are the Angami, Ao, Chakhesang, Chang, Khemungan, Konyak, Lotha, Phom, Pochury, Rengma, Sangtam, Sema, Yimchunger and Zeliang. Kohima is the state capital and Dimapur is the largest commercial town of the state.

The health indices of Nagaland seem to be better than the national averages with infant mortality rate as low as 26 infant deaths per 1000 live birth [11], and life expectancy at birth 67.33(67.94) years for males (females) [12]. If life expectancy at birth is more than 55 years, then death due to chronic disease like cardiovascular diseases, cancer and diabetes become more prevalent and frequent [13]. As such there is every possibility of prevalence of different chronic diseases in urban areas of Nagaland. Keeping this in mind, this paper assesses and evaluates the influence of various socio-economic, demographic and cultural factors as well as some risk behaviours on prevalence of chronic diseases among a representative sample of urban population of Nagaland.

Materials and Methods

The data used in this study is a primary one collected through a household survey conducted in Kohima and Dimapur towns of Nagaland during May - August 2010. The primary objective of the survey is to gather information on chronic diseases prevailing in urban areas of Nagaland viz., in Kohima and Dimapur town. The municipal area of Kohima and Dimapur had a total population of 77,030 and 107614 respectively in 2001. There are 19 wards under Kohima town and 21 wards under Dimapur Municipal Corporation. The sample selection and implementation procedures were designed to ensure that the survey provides statistically valid estimates for population parameters.

We have used Stratified Random Sampling technique taking wards as strata [14]. It is more or less known that the wards are homogenous with respect to socio-economic, demographic and cultural factors in both the towns. From each ward, households were selected by Simple Random Sampling. The latest avail-

able voters list of both the towns was used for random selection of the household. For this purpose of data collection from the respondents, a structured schedule was prepared in accordance with local health related problems in the areas. The schedule was pre-tested in order to test the validity of questions with regard to the objective of the study. Basic information was collected on each person including age, sex, marital status, religion, tribe, education, occupation, household income, food habit, type of residence, cast and family type. Information is also collected on the prevalence of certain chronic diseases (cardiovascular, diabetes, cancer, chronic respiratory disease, cirrhosis of liver, renal failure, asthma) and on certain risk behaviours (physical exercise, consuming tobacco and alcohol, smoking, body mass index etc.).

Altogether 4640 respondents were interviewed from both the towns, out of which 2457 were male and 2183 were females, from 958 households. Identification of the chronic disease afflicted persons was based upon the information provided by the respondent or elder family members of the household, but not clinically tested.

The independent variable is divided into three categories viz. socio-economic, cultural and demographic. From socio-economic characteristic we have included annual family income, occupation and education. From demographic characteristics, variables like age, gender, marital status and residence type were included. Regarding cultural factors, we have considered, religion, caste, food habit and type of family. Some other risk behaviours like, chewing tobacco, addiction to smoking and consumption of alcohol, level of physical exercise and body mass index are also included for analysis.

The logistic regression analysis is used to examine the strength of association between each covariate and the dependent variate (presence of chronic disease). The dependent variable is dichotomous i.e., presence or absence of chronic disease in the respondent.

Let, Y denote the dichotomous outcome variable and $x_1, x_2, x_3, \dots, x_k$

be a set of independent variables. Then the form of the logistic regression model is

$$\pi_x = \frac{1}{1 + e^{-z}}$$

where $z = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$
... (1a)

A transformation of π_x is the logit transformation which is defined in terms of as Hosmer and Lemeshow [15].

$$g(x) = \log it(Y) = \log_e(odds) = \log_e \left[\frac{\pi_x}{1 - \pi_x} \right]$$
$$= \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k$$

... (1b)

Where β_0 is the Y intercept, β_i 's ($i=1,2,\dots,k$) are regression coefficients, and x_i 's are a set of predictors.

Observations

We have observed from our data that out of the entire sample of size 4640 very few cases of chronic disease have been reported under age 25 years. Therefore for the analysis we have considered only those respondents who have attained age 25 years at the time of interview. Accordingly, the logistic regression analysis was carried out on 2328 respondents, out of which 1218 were male and 1110 were female. In the reduced sample 15.55% respondents were affected with chronic diseases.

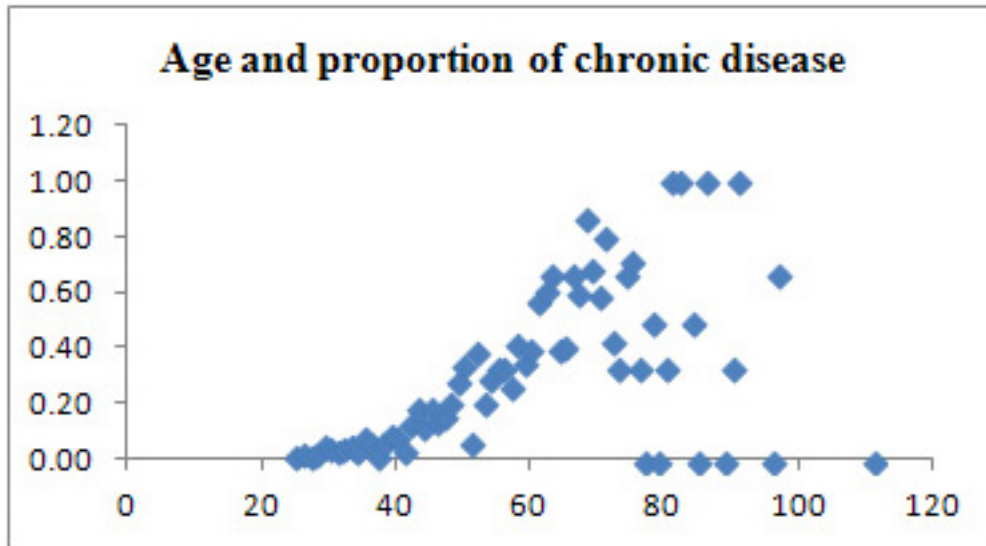


Figure 1: Scatter diagram showing age and proportion of persons affected by chronic diseases

From Figure 1 it has been observed that as age increases the proportion of persons suffering from chronic diseases also increases.

As mentioned earlier, we have used logistic regression analysis technique to examine the association between various factors and the prevalence of chronic diseases. To check the appropriateness of the fitted model we have compared the actual and the predicted outcomes derived from logistic regression analysis. The Analysis has been carried out by SPSS -11.5 software. The overall correct percentage is 72.5, which is found to be very satisfactory.

The Hosmer and Lemeshow test provides a formal test for whether the predicted probabilities for a covariate match the observed probabilities. The test shows large p-value ($p = 0.830$) indicating a good match to describe the relationship between the covariates and the outcome variable.

In Table 1.1, Table 1.2 and Table 1.3, some of the significant factors are presented along with their p-values for chronic disease, cardiovascular disease and diabetes respectively. The odds ratio corresponding to 95% confidence intervals is also being presented.

Results and Discussion

It is clear from Table 1.1, that there is a significant relationship between age and prevalence of chronic diseases. For our analysis we have categorized age into two categories viz. 25-50 years and above 50 years. This categorization is done, as out of total chronic diseases reported in the reduced sample, 62.71% chronic diseases are for persons age 50 years and above. Taking persons above 50 years of age as reference category, it is seen that persons in the age group 25-50 years are approximately 4 times less likely (odds ratio = 0.270) to have chronic disease compared to those above 50 years of age. Similar findings have been found by Gupta et al. in an investigation on the prevalence of coronary heart disease and coronary risk factors in an urban Indian population [7].

It has also been observed that there is a weak association (p -value = 0.071) between gender and prevalence of chronic disease. Taking female as a reference category, we find that males are one and half times less likely (odd ratio = 0.681) to have chronic diseases compared to females.

Table 1.1: Results of Logistic Regression for chronic diseases

Variables	B	S.E	p-value	Odd Ratio	95% CI for Odd Ratio	
					Lower	Upper
Age 25-50 years Above 50 yrs. ®	-1.308	.168	0.000*	.270	0.195	0.376
Gender Male Female ®	-0.385	0.213	0.071**	0.681	0.448	1.033
Per capita income (Annual) < Rs.10000 Rs.10000 -Rs.30000 > Rs.30000 ®	-0.473 -0.366	0.210 0.170	0.024* 0.031*	0.623 0.694	0.413 0.497	0.940 0.967
Physical exercise Any exercise None ®	-1.273	0.147	0.000*	0.280	0.210	0.373
Consume tobacco Yes No ®	0.452	0.153	0.003*	1.572	1.164	2.124
Smoking Smokers Non Smokers ®	0.393	0.201	0.051**	1.481	0.998	2.197
Consume alcohol Alcoholic Non alcoholic ®	0.892	0.192	0.000*	2.440	1.673	3.558
Body Mass Index <18(Underweight) 18-25 (Normal) >25(Overweight) ®	-0.987 -0.691	0.313 0.156	0.002* 0.000*	0.373 0.501	0.202 0.369	0.689 0.680

Note: ® Reference category, * Significant at 5% probability level, ** Significant at 10% probability level.

For the variable marital status, we have considered three categories viz. never married, widow/separated and currently married. Taking currently married as the reference category, we have observed that a never married person is almost 6 times less likely (odd ratio = 0.172) to have chronic disease as compared to the reference category. However, a widow/separated person is almost 3 times more likely (odd ratio = 2.700) to have chronic disease as compared to a currently married person. This may be possible because without their spouse they may have to take care of various problems in the family which leads to physical and mental stress.

For the variable types of residence, we have considered three categories - kachcha house, semi- pucca and pucca. It has been observed that persons living in kachcha houses are approximately three and half times less likely (odd ratio = 0.293) to have chronic disease compared to persons living in pucca house. Kachcha houses are made up of mud and thatched roof which provides very poor living conditions. People living in such environment may have higher prevalence of communicable diseases [16].

We have classified the per capita annual income into three categories viz., less than Rs.10000, Rs. 10000 to Rs. 30000 and above Rs. 30000. This classification has been done in accordance to the classification of the Organization for Economic Co-operation and Development (2003), which classifies India in the per capita annual income < \$745 (approx. Rs.30000) group. Considering per capita annual income of more than Rs. 30000 as the reference category it is observed that persons with per capita income less than Rs. 10000 are one and half times less likely (odd ratio = 0.623) to have chronic disease. If per capita annual income is between Rs 10000 to Rs 30000, the chance of having chronic disease is reduced approximately by 30% as compared to the

reference category. Thus economically advanced persons have more chance of acquiring chronic diseases. People with lower family income may have higher prevalence of other communicable diseases. Similar results have been reported by Ghosh and Arokiasamy in an investigation on morbidity in India [17].

We also intended to examine the relationship between occupation and prevalence of chronic disease. It is observed that housewives have almost three times less chance (odd ratio = 0.308) of having chronic disease as compared to retired persons. However, a self employed person is two and half times less likely (odd ratio = 0.399) to have chronic disease compared to a retired person. Persons working in the private sectors are three times less likely (odd ratio = 0.318) to have chronic disease compared to retired persons. Government employees are approximately three times less likely to have chronic disease compared to retired persons. The other category includes both unemployed and elderly persons, which also is found to be significant (p-value = 0.002).

It has been observed that variables like education, religion, food habit, caste, family type etc. have no significant effect on prevalence of chronic diseases.

For the variable physical exercise it has been observed that persons doing regular exercise are three and half times less likely (odd ratio = 0.280) to have chronic disease compared to the reference category. There is evidence that regular physical exercise increases the high-density lipoprotein and decreases both body weight and blood pressure which are beneficial to cardiovascular health [18]. As far as the risk factors are concerned, physical activity can interact in various ways that influence the risk of several chronic diseases [1].

It has been observed that, persons who consume tobacco regularly are one and half times at high risk of having chronic diseases (odd ratio = 1.572) compared to persons not consuming it. For the variable smoking we have considered persons who smoke cigarettes daily or at least twice a week as smokers and others as non smokers. Taking non smokers as reference category we have observed that smokers are approximately one and half times (odd ratio = 1.418) at high risk of acquiring chronic disease compared to non smokers. This fact is widely acknowledged as smoking has been identified as a major coronary heart disease risk factor [18]. For the variable consumption of alcohol, we have considered those persons who consume alcohol regularly or at least once a week as alcoholic and others as non alcoholic. It is clear from the table that alcoholic persons are more than two and half times (odd ratio = 2.440) at high risk of having chronic disease compared to non alcoholic persons. Similar results have been observed by Lowry et al. (1996) [4]. Also, high alcohol intake (75g or more) per day is an independent risk factor for hypertension and all cardiovascular diseases [19].

For the characteristics body mass index, we have considered three categories viz. underweight (BMI<18), normal (BMI = 18-25) and overweight (BMI>25). If we take overweight as a reference category, then persons with BMI<18 (underweight) are two and half times less likely (odd ratio = 0.373) to have chronic diseases compared to overweight persons. Further, persons with normal weight are 50% less likely (odd ratio = 0.501)

to have chronic disease compared to overweight or obese persons. Obesity may be mediated by other cardiovascular disease risk factors, including hypertension, diabetes mellitus, and lipid profile imbalances [20]. Overweight and obesity have a significant association with chronic disease [21].

It is observed from our data that in the reduced sample of persons of age 25 years and above, 6.4% persons are afflicted by cardiovascular diseases (CVD), 4.6% suffer from diabetes, 0.9% are afflicted by cancer and 3.7% are afflicted by other chronic diseases. Out of all persons suffering from chronic diseases, 40.89% suffer from CVD, 29.28% are from diabetes, 6.07% are from cancer and 23.76% are from other chronic diseases. These observations suggest that in our study prevalence of CVD is the most common and frequent followed by diabetes. Similar observations have been reported by Choudhury et al. in an investigation on prevalence of chronic diseases in Guwahati city [9].

Table 1.2 presents the results of the logistic regression analysis for cardiovascular diseases (CVD) with respect to different characteristics. It has been observed from the analysis that CVD in particular and chronic diseases taken together show similar types of results with few notable exceptions. There is a weak association (p-value = 0.071) between gender and prevalence of chronic disease taken together, but we found no significant association between gender and the prevalence of CVD. Also, the variable occupation has found to be associated with chronic disease, but there is no significant effect of occupation on prevalence of CVD. There is no significant relationship between food habit and prevalence of chronic diseases taken together, but we found a significant association between food habit and prevalence of CVD.

It is seen that vegetarians are two times more likely (odd ratio = 2.106) to have CVD as compared to non-vegetarians. This may be possible because most of the vegetarian people found in the survey are from non Naga community and they usually take food high in fats resulting increasing cholesterol level. In a study of dietary pattern of Japan and Finland, it is found that Japanese have low fat diets resulting in low serum cholesterol and low incidence of coronary heart disease [18].

Moreover, persons belonging to a joint family have almost one and half times less chance (odd ratio = 0.635) of having CVD as compared to nuclear family. There is a weak association (p-value = 0.098) between BMI and prevalence of cardiovascular disease in the urban setup of Nagaland. Persons with BMI<18 (underweight) are half times less likely (odd ratio = 0.45) to have chronic diseases compared to overweight persons.

The results of logistic regression analysis for diabetes are presented in Table - 1.3. It is observed that age, marital status, annual family income, physical exercise and body mass index have significant effect on prevalence of diabetes as well as chronic disease taken together. It is seen that persons in the age group 25-50 years are approximately three and half times less likely (odd ratio = 0.284) to have chronic disease compared to those above 50 years of age. Although diabetes may occur at any age, surveys indicate that prevalence rises steeply with age. [18] However, variables like gender, residence type, occupation, chew tobacco, smoking, consumption of alcohol were found to

Table 1.2: Results of Logistic Regression for Cardiovascular diseases

Variable	B	S.E	p-value	Odd Ratio	95% CI for Odd Ratio	
					Lower	Upper
Age 25-50 years Above 50 years ®	-1.244	.230	0.000*	0.288	0.184	0.453
Marital status Never married Widow/ Separated Currently married ®	-2.414 1.065	0.736 0.262	0.001* 0.000*	0.089 2.901	0.021 1.735	0.378 4.851
Per capita income (Annual) < Rs.10000 Rs.10000 - Rs.30000 Above Rs.30000 ®	-0.182 -0.491	0.283 0.236	0.519 0.038*	0.833 0.612	0.479 0.385	1.450 0.972
Food habit Vegetarian Non-vegetarian ®	0.745	0.359	0.038*	2.106	1.042	4.260
Physical exercise Any exercise None ®	-1.185	0.212	0.000*	0.306	0.202	0.463
Consume tobacco Yes No ®	0.423	0.214	0.048*	1.527	1.004	2.321
Smoking Smokers Non Smokers ®	0.477	0.251	0.057**	1.611	0.985	2.634
Consume Alcohol Alcoholic Non Alcoholic ®	0.847	0.240	0.000*	2.332	1.456	3.734
Body Mass Index <18(Underweight) 18-25(Normal) >25(Overweight)®	-0.793 -0.254	0.479 0.213	0.098** 0.233	0.453 0.776	0.177 0.511	1.158 1.178

Note: ® Reference category, * Significant at 5% probability level, ** Significant at 10% probability level.

have no significant effect on diabetes unlike chronic diseases taken together. However, excessive intake of alcohol can increase the risk of diabetes by damaging the pancreas and liver and by promoting obesity [19]. We observe a weak association (p value = 0.058) between a person who belongs to a joint family and prevalence of diabetes. Persons belonging to a joint family are approximately one and half times more likely (odd ratio = 1.590) to have diabetes compared to the reference category nuclear family.

Conclusions

Chronic disease is primarily a mass disease. The strategy should therefore be based on mass approach focusing mainly on the control of underlying causes in whole populations, not merely in individuals. A small change in risk factor levels in total population can achieve the biggest reduction in chronic disease mortality. As there is a large proportion of chronic diseases cases are observed in urban areas of Nagaland, first of all, the overall burden of chronic disease risk factors should be lowered through population-wide public health measures, such as community level campaigns against cigarette smoking, unhealthy diets, and physical inactivity etc. In spite of the tremendous advancement in the field of preventive medicine, the health care services in tribal communities of Nagaland are still poor and need to be strengthened to reduce the occurrence of these potentially fatal chronic diseases.

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Is it General Paresis?

Abdulrazak Abyad

Correspondence:

A. Abyad, MD, MPH, MBA, AGSF, AFCHSE

CEO, Abyad Medical Center

President, Middle-East Academy for Medicine of Aging Coordinator, Middle-East Primary Care Research Network

Coordinator, Middle-East Network on Aging

Email: *aabyad@cyberia.net.lb*

ABSTRACT

The manifestations of central nervous system syphilis are unfamiliar to a differential of patients with dementia to many physicians today as a result of the relative rarity of this condition. This is a report of a patient with syphilis and dementia in an 88 year old Hispanic female. General Paresis is a progressive disease of brain leading to mental and physical deterioration. The clinical manifestations usually appear about 15-20 years after primary infection. It is important to keep tertiary syphilis in the differential diagnosis of dementia.

Key words: Syphilis, Paresis, Dementia

“Knowing syphilis in all its manifestations and relations, and all other things clinical will be added into you”.

Sir William Osler, 1897

Syphilis is one of the most interesting diseases of humans. The disease has been of great historical significance for the practice of medicine, and for many persons who played important roles in the history of western world (1). Syphilis has expanded rapidly during the past two decades. The increase started gradually in the 1970s, due to the alteration in sexual behavior. The overall incidence increased slowly until 1982 and then declined slightly until 1986 (2). The number of reported cases of syphilis, including primary, secondary and congenital syphilis, has been rapidly rising since 1987 (3,4).

Case Report

This is a report of a patient with syphilis and dementia. An 88 year old Hispanic female presented with multiple problems. The daughter noted over the last year that her mother became less talkative than before. She is quite most of the time and she is usually not oriented to time, place and person. She still remembers the immediate family, but she cannot engage in long conversations. Her Folstein Mini-Mental score was 17/30, her geriatric depression scale was 14/30. Other associated problems include urinary incontinence and gait disturbance. Her neurological examination revealed: The left pupil is 7 millimeters with minimal reaction to light. The right pupil was 45 millimeters and reactive to light. Normal heart sounds S1 and S2, regular rhythm with no gallop or rail. Unequal pupils with one of them reactive to light; the other not reactive, pupils react normally to convergence accommodation. The rest of the cranial nerves were intact with good gag reflex. Reflexes are +2 all over; no nystagmus. Babinski was positive on the left side, muscle power was 3/5, unsteady gait. Laboratory study revealed a positive VDRL, a positive FTA. Her CT scan of the brain was normal. Ophthalmology examination revealed interstitial keratitis. The patient was hospitalised in 1987. Lumbar puncture was attempted three times but failed. She received treatment with IV penicillin for 10 days.

The Stages of Syphilis

Primary Syphilis:

The typical lesions (Chancre) of the untreated illness typically appears from 10 to 90 days (average 3 weeks) from exposure. The lesion is normally single but may be multiple, and while it is normally painless and connected with regional adenopathy, exceptions occur (5).

Secondary Syphilis:

Classically, secondary Syphilis is featured by macular or papular lesions on the palms and soles. Nevertheless, the rash frequently begins on the trunk and spreads to the extremities ultimately embracing the whole body. It usually evolves six to eight weeks after the chancre has healed (2). It is also linked with systemic symptoms, including low grade fever, malaise, myalgia and generalised lymphadenopathy (6). Meningitis, iritis, glomerulonephritis and hepatitis are infrequent but potential manifestations of secondary syphilis (Table 1) (5). The differential diagnosis of secondary Syphilis is broad, which accounts for the disease’s historical name as “the great imitator” (5). The family of the patient did not recall any illness that resembles the above.

Latent Syphilis:

The latent stage has no clinical manifestations. It is divided into an early phase and a late phase. The Centers for Disease Control currently uses a one year cutoff to differentiate between early and late latent infection (2). Latent Syphilis follows the secondary stage of infection in the untreated patient. Roughly 25% of patients in the early latent stage will have at least one relapse of mucocutaneous symptoms, which may be helpful in the clinician’s evaluation and management (7). Up to 35 percent of untreated persons with latent syphilis acquire the late sequelae of tertiary syphilis (7).

Tertiary Syphilis

Tertiary Syphilis is an ongoing, inflammatory disease that can effect any organ system. Among the untreated patients in the Oslo study who progressed to tertiary disease, cardiovascular Syphilis developed in 10%, neurosyphilis in 10% and gummatous Syphilis in 15% (7).

Neurosyphilis

The manifestation of the central nervous system readily recognised by practicing physicians three or four decades ago are unfamiliar to many physicians today as the result of relative rarity of this condition, as happened with our patient. A helpful schema for classification of neurosyphilis is shown in (Table 2). Although this classification indicates the existence of distinctive individual forms of neurosyphilis, features of several of the entities commonly coexist.

Table 1: Clinical Manifestations of Secondary Syphilis

Manifestation	Percentage of cases
Skin rashes	90
Macular, maculopapular, papular, pustular lesions, Condylomata, lata	
Mouth and throat lesions	35
Mucous patches	
Erosions or ulcers	
Genital lesions	20
Chancre	
Condylomata lata	
Constitutional Symptoms	70
Fever, malaise, myalgia, pharyngitis, arthralgia	
Central nervous system	
Asymptomatic	8-40
Symptomatic (headache, meningismus)	1-3
Generalised lymphadenopathy	50
Renal disorders	<10
Glomerulonephritis	
Nephrotic syndrome	
Gastrointestinal manifestations	<10
Hepatitis	
Intestinal wall invasion	

Table 2. Classification of Neurosyphilis

- Asymptomatic neurosyphilis**
- Early
- Late
- Meningeal neurosyphilis**
- Acute syphilitic meningitis
- Spinal syphilitic pachymeningitis
- Meningovascular neurosyphilis**
- Cerebral form
- Spinal form
- Parenchymatous neurosyphilis**
- General Paresis
- Tabes dorsalis
- Optic atrophy
- Gummatous neurosyphilis**
- Cerebral form
- Spinal form

Long-term longitudinal studies performed earlier in this century revealed that out of 953 persons with primary or secondary syphilis, 6.5 percent subsequently developed CNS involvement (8,9). The most common forms of nervous system involvement were asymptomatic neurosyphilis (31%) and tabes 30%. The incidence of paresis was most likely underrated since such patients were more probable to have been treated in psychiatric rather than general hospitals.

General Paresis

General paresis is a meningoencephalitis associated with true invasion of the cerebrum by *T. Pallidum*. The clinical illness is a chronic process that may present in middle or late adult life. The course is progressively downhill, in untreated patients. This form of late Syphilis develops 15 to 20 years after initial infection. Patients with this disease made up to 5 to 10 percent of all first admissions of psychotic patients to psychiatric hospitals prior to World War II. (9,10).

Symptoms and Signs

The clinical picture is an aggregation of neurologic findings and psychiatric symptoms. It can imitate nearly any type of psychiatric or neurological disorder. It is usually insidious in onset. The early characteristics are normally of psychiatric kind, and the trend of illness is that of a dementing process. Initial manifestations embody progressive memory loss, worsening of intellectual function and personality changes which was the case in our patient. Other symptoms include defects in judgement, emotional lability, delusions, and inappropriate social or moral behavior, in our case there were no delusional symptoms. Depression in some studies has been reported as the predominant presenting feature and the most common initial diagnosis in patients with paresis (11). The patient was clinically depressed, with a GDS of 14/30.

In patients with paresis of apparently sudden clinical onset, the earliest indication of the disease may be seizures, transient ischemic attacks, or an apparent stroke with loss of consciousness (apoplectiform attack), followed by hemiparesis, monoplegia, or aphasia. Pupillary abnormalities are among the most common neurologic findings in general paresis (Table 3 - next page). Speech gets continuously thicker, and the issue may be complicated by the development of global aphasia. A true Argyll Robertson pupil is not common in early paresis; at this stage the pupil may be large (rather than miotic), unequal, and sluggishly reactive to light and accommodation. Gradually, normal pupils can turn to Argyll Robertson type that was present in this patient, characterised by:

- (1) The retina is sensitive (i.e., eye is not blind);
- (2) Pupils are small, fixed and do not react to strong light;
- (3) Pupils react normally to convergence-accommodation;
- (4) Mydriatics (atropine) fail to dilate pupil fully;
- (5) Pupils do not dilate on painful stimuli.

Apathy, hypotonia, unsteadiness, dementia, and physical deterioration become the major elements in the clinical picture, as the disease advances. Recurrent focal or generalized seizures accompany progressive deterioration resulting in bedridden, paralyzed, incontinent state. The term Lisauer's dementia

paralytica describes a small group of atypical cases of paresis which showed focal neurological signs and on autopsy exposed impressive atrophy of certain cerebral convolution (9), especially in the frontal and temporal lobes. Such patients formerly had focal seizures followed by hemiparesis, hemianopia, or aphasia which thereafter cleared.

The duration of untreated paresis, from the onset of detectable mental symptoms till death, has ranged from a few months, in cases of sudden onset, to 4 or 5 years (9). Spontaneous remissions in mental symptomatology have happened infrequently, but have not changed the ultimate course of the disease. In the pre-penicillin era, treatment of paresis with malaria plus arsenicals benefited 33 to 50 percent of cases by arresting progression of the disease and allowing some type of occupational activity. The shorter the duration, and the milder the symptoms at the institution of therapy, the better the prognosis. In this lady treatment started late and no amelioration of symptoms was noted after treatment.

A few cases of general paresis, despite treatment with large doses of penicillin, have communicating hydrocephalus as a complication. This leads to either lack of clinical amelioration or gradual worsening. These patients develop gait apraxia, akinetic mutism, incontinence and pyramidal tract signs along with severe dementia (12). CSF shunting causes prompt amelioration in several cases. Diminished CSF absorption by chronic meningitis and meningeal fibrosis in general paresis seems to be the cause for this process.

Laboratory Findings

The blood nontreponemal serology has been reported positive in 95 to 100 percent of cases of paresis (9,12). In another study, only 48.5 percent of patients with a diagnosis of neurosyphilis had a positive nontreponemal serology (13). However, 56.3 percent of patients had a history of earlier treatment of syphilis. Thus, this series may not be as conflicting with other studies as it seems, since earlier treatment may have been adequate to cause seroconversion (without preventing the subsequent development of neurosyphilis). The serum FTA-ABS test is uniformly positive in patients with paresis. In our case both VDRL and FTA were positive.

CSF abnormalities are present in practically all cases of untreated paresis (9). The characteristic CSF findings, include the following:

- (1) Normal or, occasionally, slightly increased pressure;
- (2) Lymphocytic pleocytosis (usually 8 to 100 lymphocytes per cubic millimeter);
- (3) Increased protein concentration usually 50 to 100 mg/dl)
- (4) Increased globulin concentration;
- (5) Positive colloidal gold reaction, when performed
- (6) Normal or occasionally, mildly reduced glucose; and
- (7) Reactive nontreponemal test.

The CSF nontreponemal tests show a very high specificity, and false positive VDRL test is remarkably exceptional. Thus, a positive CSF VDRL test is a powerful indication for a diagnosis of neurosyphilis. However, CSF nontreponemal tests may have

Table 3. Symptoms and Signs of General Paresis

Symptoms	Signs
Irritability	Pupillary abnormalities Argyl II Robertson Pupils
Personality Changes Failure of Memory	Tremor (tongue, hands)
Poor Concentration	Dysarthria
Careless in appearance	Lack of facial expression (masked face)
Intellectual deterioration	Pyramidal signs
Decreasing efficiency	Convulsions
Defective Judgement	Incontinence of urine and feces
Insomnia	
Changes in mood (euphoria, depression, agitation)	
Delusions	
Hallucinations	
Seizures	
Confusion and disorientation	

a sensitivity of less than 100 percent. In some patients with clinically diagnosed neurosyphilis (14), CSF Wassermann reactions have been reported negative. This can happen in a patient whose neurosyphilis process has been confined by treatment leaving steady mental changes.

In a few clinically characteristic cases of neurosyphilis (15) CSF VDRL may be negative, and the entire CSF analysis may be normal. Although abnormalities occur in the CSF of 25 to 40 percent of patients with untreated secondary syphilis (16), designating early association of nervous system, treatment with penicillin usually prevents any progression to symptomatic neurosyphilis. CSF FTA-ABS may be reactive as a product of diffusion of serum syphilis, therefore there are problems with the specificity of this test (17). False positive reactions occur in 0.5 to 4.5 percent. In addition, a reactive CSF FTA-ABS result may not indicate active neurosyphilis, since the reactivity may be produced by diffusion of serum immunoglobulins into the CSF (18). Also contamination of a CSF specimen with very small amounts of FTA-positive blood can produce a false positive CSF FTA test (19). For these reasons the interpretation of a

positive CSF FTA test is unclear (20). At present, a positive CSF FTA test alone in a patient with neurologic findings of uncertain nature does not establish a diagnosis of neurosyphilis.

In patients with paresis EEG is abnormal in 80 percent of cases. Recently CT scan has been utilized to assess cerebral syphilis (21). Findings on CT scan range from extensive regions of decreased attenuation of the cerebral white matter, particularly in the frontal lobes and paraventricular areas of parietal lobes to enlargement of cortical sulci and associated ventricular dilation (21). These findings resemble the CT scan pattern observed in demyelinating disorders. Other CT findings include cortical atrophy and multiple areas of hypodensity in both cerebellar hemispheres and in the brain stem (these findings are consistent with infarctions) (21). Godt et al (22) found both enhancing lesions (gummas) and generalized cortical and subcortical atrophy in several patients with neurosyphilis. Chest roentgenograms may show widening of the aorta, consistent with syphilitic aortitis, which occasionally coexists with parenchymatous neurosyphilis.

Diagnosis and Differential Diagnosis

The clinical picture, is easily distinguishable in its full-blown form, however is more hard to ascertain when atypical or incomplete. Spinal fluid alterations usually help in the diagnosis. The CSF is abnormal in all untreated cases of general paresis, but the same alterations can happen in the middle of other neurosyphilis. Hence, the association of preexisting CSF alterations of asymptomatic syphilitic meningitis with a diversity of organic brain syndromes can be misdiagnosed as general paresis. These include cerebral tumor, subdural hematoma, cerebral arteriosclerosis, Alzheimer's disease, multiple sclerosis, senile dementia, and chronic alcoholism. CT scan findings, the presence of pupillary changes, and a history of drug or alcohol abuse are useful in accurate diagnosis. Hallucinations are important in delirium tremens but are unusual in general paresis. However alcoholic worsening and Korsakoff's psychosis can present a picture of memory loss, unsuitable conduct, mood swings, and faulty opinion that is hard to differentiate from paresis.

An adult-onset seizure disorder can be a presentation of paresis or of an exceptional form of neurosyphilis. Paresis may be ruled out when CSF irregularities are lacking. When CSF alterations of neurosyphilis are present, the inquest change to whether the seizures symbolize epilepsy in a patient with asymptomatic neurosyphilis or whether they are the presentations of syphilitic brain injury. The presence of focal neurologic findings in patients with neurosyphilis-produced seizures aids in answering the question.

Management

ANTIBIOTIC THERAPY

The management of neurosyphilis and outcome has markedly improved since the introduction of penicillin. In a multicenter study including treatment of over 1000 patients with paresis, a total penicillin dosage of six million units was judged to be satisfactory (23). Patients who required re-treatment to arrest the infection had received less than six million units of penicillin initially. In the past decade it has been recognized that the treatment with 7.2 million units of benzathine penicillin G (2.4 million units intramuscularly weekly for 3 doses) is sufficient treatment for all kinds of neurosyphilis. The most recent recommendations of the Centers of Disease Control (24) involve the use of either intravenous aqueous penicillin G for 10 days, intramuscular procaine penicillin G for 10 days, or weekly injections of benzathine penicillin G for 3 doses (Table 4) (24). Intravenous penicillin G for 10 to 15 days is the most reasonable therapy to employ for symptomatic or asymptomatic neurosyphilis. This assures penicillin concentrations in CSF which are continuously at least several fold above the minimally treponemicidal concentration of 0.018 microgram per milliliter during therapy (25, 26). Alternatively, daily aqueous procaine penicillin G (plus probenecid) for 10 to 14 days would be preferable to benzathine penicillin G, that is no longer recommended by the World Health Organization.

FOLLOW-UP AND RE-TREATMENT

The CSF data are normally a reliable index of the activity of neurosyphilis and furnish a gauge of the efficacy of the antibiotic therapy. When initial penicillin therapy has stopped the infection, repeat CSF examination at 3 to 6 months reveals normal cell count and, if initially elevated, a decline in concentration of protein (27).

Table 4. Drug Regimens for Treatment of neurosyphilis

1. *Aqueous crystalline penicilline G*: 12 to 24 million units intravenously daily (2 to 4 million units every 4 h) for 10 days, followed by benzathine penicillin G 2.4 million units intramuscularly weekly for 3 doses
2. *Aqueous procaine penicillin G*: 2.4 million units intramuscularly daily plus probenecid 500 mg orally 4 times daily, both for 10 days followed by benzathine penicillin G 2.4 million units intramuscularly weekly for 3 doses
3. *Benzathine penicillin G*: 2.4 million units by intramuscular injection weekly for three doses
4. *Tetracycline hydrochloride*:* 500 mg orally 4 times daily for 30 days

* For patients who are allergic to penicillin.

One year after treatment CSF examination reveals a persistent fall in the protein level and a decrease in the titer of the non-treponemal serologic test. However, the latter may not become completely negative for several years or longer and is not an indication of active neurosyphilis under these circumstances. In three to six months if the CSF cell count does not return to normal or if, having returned to normal, the count rises again in relapse, then re-treatment is indicated. If relapse has not occurred during a period of 2 years after adequate penicillin therapy, it is unlikely to occur. Subsequently, reexamination should be done annually for several years. Blood serologic testing should be performed at 6 and 12 months and afterwards at yearly intervals for at least 3 years (28).

PROGNOSIS

The natural history of the disease is progressive, and the result is ultimately deadly. The span of life from the beginning of tangible mental symptoms to death normally extends from a few months to 4 or 5 years, but an infrequent treated patient with so-called stationary paresis has survived for 10 years (9). Recent studies involving longer term follow-up indicate the development of new neurosyphilis signs in 39 percent of patients treated with penicillin (29). Advancement of the disease can happen indeed in the absence of reactive CSF tests. It is equivocal whether the evolution of new signs in patients with paresis treated with what has been determined adequate penicillin dosage is due to persistence of treponemes in the CSF, to the need for spirocheticidal concentrations of penicillin in the CSF (30, 31), or to an increased susceptibility to other neurologic processes. More study of these treatment failures is required.

Conclusion

Syphilis is still prevalent, especially in particular sectors of the population. Late complications can be somewhat less of an issue than the preantibiotic era, however vigilance to the probability of late Syphilis and appreciation of clinical manifestations of late Syphilis are crucial if these forms of disease are to be diagnosed and treated adequately. The main consideration must be vigilance in finding, treating, and preventing early Syphilis. Since all forms of Syphilis, especially certain types of late Syphilis, are less common than the glory days of Syphilis as a clinical specialty, it is important to educate others and to remind ourselves of the multiple faces of the great actor, lues venerea.

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