

# Development of a Reliable and Valid Questionnaire to Identify Factors Affecting Health of Postmenopausal Women in Selected Areas of Gurugram, India

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## ABSTRACT

**Introduction:** Postmenopause is the period when a woman misses her menstrual cycles for the entire year. A host of issues involving health, fitness and psychological problems come up in this phase which effect quality of a life of a woman significantly therefore a substantial degree of care is needed for them. There are various factors that affect the physical and psychological health of postmenopausal women.

**Aim:** To develop a self-structured questionnaire that would identify and address various factors that affect health of postmenopausal women in Gurugram India.

**Materials and Methods:** A thorough literature search related to the subject matter was done along with the interview of researchers working on the health status of postmenopausal women to arrive at a questionnaire, and a pilot study was conducted on 60 postmenopausal women (average age 52±3.44 years) from September 2019 to March 2020. Expert opinion

was taken twice before preparing first draft of questionnaire. Questionnaire had 4 sections with questions related to demographic details, medical history, physical activity status and psychological health status. The scores were evaluated and subjected to reliability and validity tests. SPSS software version 20 was used to calculate Cronbach's alpha value for ensuring reliability of the questionnaire.

**Results:** The questionnaire possesses good content and face validity. Cronbach's alpha value was 0.772 which indicated acceptable degree of correlation between different items of questionnaire. The final questionnaire consists of 24 questions. Numerical coding of responses was done from 0-2. A score of 0-10, 11-20 and >21 indicated mild, moderate and severe effect respectively on health of postmenopausal women.

**Conclusion:** The questionnaire can be utilised to evaluate factors affecting physical and mental health issues of postmenopausal women.

**Keywords:** Fitness, Mental health, Noncommunicable diseases, Vasomotor symptoms

## INTRODUCTION

Prospects of living longer for women across India and globe have increased. So, women are spending a major percentage of their life in their postmenopause phase. Menopause is a phase when a woman stops getting her regular menstrual cycle. A host of health, fitness and psychological problems come up in this phase which effect quality of a life of a woman significantly, so a substantial degree of care is needed for them [1,2]. A research reported a prevalence of 32% for various psychological health issues among postmenopausal women in North India [3]. There has been a rise in prevalence of noncommunicable diseases also known as chronic diseases in postmenopausal phase. Lifestyle changes like reduced physical activity, sedentary lifestyle has led to reduced fitness level among postmenopausal women [4,5]. Reduced physical activity is believed to be one of the strong predictors of cardiovascular diseases among women [2].

A study done by Ranasinghe C denoted high prevalence of physical inactivity (50.9%) and grade 2 obesity among postmenopausal women in Karnataka [6]. Postmenopause phase also witnesses somatic and psychological health issues like anxieties, depression, sleep problem, hot flushes etc., [3].

Researchers have mentioned various stressors that put postmenopausal women prone to develop somatic and psychological health issues are stress, major life events, poor social economic status, poor health status, reduced fitness level and negative feelings related with menopause [4]. Most of the studies done in India has assessed prevalence of vasomotor symptoms and health related quality of life of postmenopausal women [1,7,8].

Very few studies have been done to evaluate impact of menopause on all aspects of health and their association with socio economic and demographic factors [9,10].

In India not much attention is paid to health issues of postmenopausal women and is considered a normal part of aging, so it is important to screen for the factors that may affect physical health and mental health of such women so that these factors can be addressed properly. Various questionnaires are available that address menopause specific vasomotor symptoms, health related quality of life, mental health and other factors [7,8,12].

The present study was done to develop a self-structured questionnaire that would address factors affecting physical health, physical fitness and psychological health with respect to postmenopausal women in Gurugram, India. Aim of the present study was to describe the development and validation of a questionnaire that would identify factors affecting physical and mental health of postmenopausal women in selected rural and urban areas of Gurugram.

## MATERIALS AND METHODS

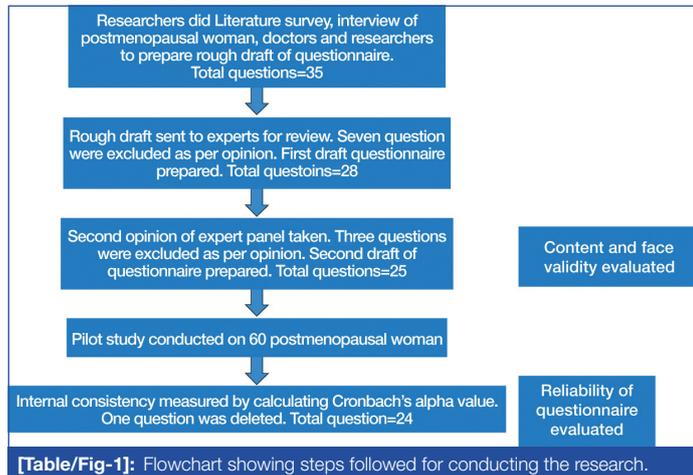
It was a pilot study which was conducted in SGT University, Gurugram. Ethical clearance was obtained from the Ethics Committee of Faculty of Physiotherapy, SGT University Gurugram Ref no (SGTU/FOP/2019/72). Permission was also sought from Medical Superintendent, SGT Hospital for conducting the survey during health camps. The data collection commenced in the month of September 2019 and continued till November 2019. Compilation of data, analysis and writing of report took around 4 months (March 2020).

**Inclusion criteria:** Postmenopausal women, age group of 45-60 years, residing in rural (Mankrola, Sultanpur, Chandu) and Urban (Basai, Farrukhnagar, Urban Gurugram) areas of North east region of Gurugram and willing to participate in the study, were included in the study.

**Exclusion criteria:** Women with history of surgical hysterectomy and age above 65 years were excluded from the study.

The purpose of study was explained to the subjects and informed consent was taken from all the participants.

The study was conducted in four steps. [Table/Fig-1] shows step by step procedure that was followed.



[Table/Fig-1]: Flowchart showing steps followed for conducting the research.

## Steps

**Development of questionnaire:** A total of 100 postmenopausal women from the above mentioned urban and rural areas of Gurugram were approached during regular health camps organised by our Institute. They were interviewed to understand different aspects of factors affecting their physical and mental health. With a view to assess risk factors for physical and mental health, all the enrolled women were interviewed regarding age at menopause, parity, medical and obstetric history, menopausal symptoms, personal habits, physical health issues, lifestyle regarding physical activity status and routine, psychological and social stressors. Along with this, an interview of the doctors including researchers from Departments of Obstetrics and Gynaecology, Medicine and Physiotherapy and Orthopedic Department of SGT Hospital Gurugram was carried out. A thorough literature search was also done by researchers.

**First draft of questionnaire:** The information that was collected in the first step was utilised to develop various items related to main objectives of the questionnaire. Different questions were prepared ranging from dichotomous questions to multiple choice questions where in the respondents have to select the best answer. The initial item pool consisted of 40 questions which were later reduced to 35 questions with only important, clear and specific questions included in it. Care was taken that the language was kept simple. Certain medical terminologies like Myocardial infarction, hypertension etc., were translated in Hindi and put in brackets as the sample included postmenopausal women with different levels of knowledge and understanding.

To ensure content and face validity of the questionnaire, evaluation of item pool of questionnaire was requested from 5 experts working on the health issues related to postmenopausal women. These included Professors and MD Doctors, one from Department of Community Medicine, one from Psychiatry, two from Obstetrics and Gynaecology and one from Physiotherapy. They were requested to examine the questionnaire with 35 questions for its relevance with respect to subject matter of study for accuracy and also evaluate for its strength and weakness. From the item pool of 35 questions,

28 questions were selected by experts. Based on these inputs first draft of questionnaire was prepared.

**Second draft of questionnaire:** A second review was also taken from another expert panel in which some changes were suggested which were incorporated into the second draft of questionnaire. The panel consisted of two senior Physiotherapy Professors working in the field of Obstetrics and Gynaecology and one senior Professor from Department of Orthopaedics. Content Validity Index (CVI) for each item was calculated [11]. Based on their response, 3 items were deleted. The second draft of questionnaire resulted into development of a self-structured questionnaire consisting of 25 questions. Questionnaire was divided into 4 sections. The first section included demographic details like name, age, occupation, employment status, number of children, education status, type of family etc. The second part of the questionnaire included medical history, third part consisted of physical health and fitness details like their exercise habits, frequency of exercising, type of physical activities they do etc. The last part of the questionnaire included factors affecting their psychological health [Annexure-1].

**Conduction of pilot study:** To evaluate the compatibility and appropriateness of second draft of questionnaire with the target population, a pilot study was conducted on 60 postmenopausal women from the same rural and urban areas of Gurugram from where the first sample population was taken and the selection criteria also remained the same. This sample of postmenopausal women was different from those that were initially interviewed for preparing rough draft of questionnaire. A sample of 30 each was taken from urban and rural areas of Gurugram by purposive random sampling. The purpose of study was explained to the subjects and they were requested to fill the questionnaire in the presence of researcher. On an average, respondents took 10-15 minutes to fill the questionnaire.

According to census of India, an urban area can be defined as an area with municipality corporation, with a minimum population of 5,000 of density 400 persons per square kilometer and with at least 75% of males working in non-agricultural pursuits and a rural area can be defined as an area with clear surveyed boundary but no municipal board with a population density of up to 400 per square kilometer and with >75% of male population involved in agricultural activities [13].

**Reliability of questionnaire:** To check the internal consistency of the questionnaire Cronbach alpha value was calculated. The value ranged from 0-1. A score of 0.7 or higher was considered acceptable. It was calculated for entire questionnaire. Five questions in section A (occupation, marital status, income, personal habits-smoking and alcohol), were excluded before measuring Cronbach's alpha value as they had zero variance. But they were kept in questionnaire due to their relevance to the research area. Questions in the section B i.e., Physical health and Fitness Status were not included since a reply of NO (for e.g., answer NO to question "Do you exercise") needs respondent to skip that question.

## STATISTICAL ANALYSIS

Numerical coding of the responses obtained from each participant was done. Responses were converted to 0, 1 and 2 depending upon codes assigned. SPSS software package version 20 was used to analyse the data. To ensure internal consistency of the questionnaire, Cronbach alpha value was calculated using SPSS software version 20.0. The value ranged from 0-1. A score of 0.7 or higher supported reasonable internal consistency.

## RESULTS

The pilot study was conducted on 60 postmenopausal women. The average age in study group was  $52 \pm 3.44$  years and the mean age of onset of menopause was 46.38 years. Average Body Mass Index (BMI) was 27.3 Kg/m<sup>2</sup>. Some other survey details have shown in [Table/Fig-2].

Parameter	Category	Value (N=60)
Occupation	Full time	14
	Part time	18
	Non working	28
Education level	Secondary	22
	Graduate	27
	Postgraduate	11
Type of family	Joint	34
	Nuclear	26
Marital status	Married	49
	Unmarried	5
	Divorced	2
	Widowed	4

[Table/Fig-2]: Socio demographic details.

### Content Validity

Questionnaire was sent to experts twice with request for comments. As suggested by experts, small amendments were done which included grammatical corrections. One question regarding caste details in section one was suggested by four reviewers to be of no significance whereas the section two sub heading was suggested by most of reviewers to be modified from chronic diseases to chronic diseases and Medical History. Overall, seven questions were removed from the questionnaire after first expert opinion as the questions were suggested by the reviewers did not pertain to health of postmenopausal women and 3 were deleted after second expert opinion as their CVI was less than 0.70. CVI evaluates clarity and relevance of each item of the questionnaire. A CVI of more than or equal to 0.79 was considered satisfactory for each statement. Current study had a mean CVI of 0.80.

### Face Validity

Most of the respondents (90%) on whom pilot study was conducted said that they found it easy and were able to understand questions thoroughly and could answer it easily. Lay out of the questions, font size, questionnaire length was found appropriate by most. Question number 16 “Physical activity” in section C of questionnaire was modified to “How frequently you exercise?”

### Reliability

For confirming reliability of questionnaire, Cronbach’s alpha reliability coefficient was calculated as shown in [Table/Fig-3]. The Cronbach alpha value was calculated for total items (N=21) of the questionnaire, the value of which came 0.660 [Table/Fig-3]. One item i.e., “Living alone” was deleted from the questionnaire which improved the reliability of the questionnaire to 0.772 with total items N=20 [Table/Fig-4]. The final questionnaire consisted of 24 questions.

Cronbach’s alpha		Cronbach’s alpha based on standardised items				No. of items
0.566		0.660				21
Sr. No.	Items studied in questionnaire	Scale mean if item deleted	Scale variance if item deleted	Corrected item-Total correlation	Squared multiple correlation	Cronbach’s alpha if item deleted
1.	Employment status	15.68	7.922	0.212	NA	0.435
2.	Type of family	15.47	8.560	0.093	NA	0.462
3.	No. of children	14.21	8.593	0.137	NA	0.654
4.	Education	15.29	8.275	0.055	NA	0.483
5.	Domicile condition	15.24	8.125	0.318	NA	0.521
6.	Hysterectomy	15.38	9.698	-0.277	NA	0.531
7.	Oophorectomy	15.15	8.917	0.021	NA	0.471
8.	C-section	15.26	8.504	0.148	NA	0.551

9.	Chronic diseases and medical history	15.12	7.440	0.315	NA	0.403
10.	Somatic symptoms	14.85	7.644	0.368	NA	0.398
11.	Musculoskeletal problems	15.15	8.311	0.183	NA	0.444
12.	How frequently you exercise?	15.32	8.839	0.005	NA	0.471
13.	Type of exercise	14.82	7.640	0.365	NA	0.396
14.	Life events	14.41	8.856	-0.005	NA	0.481
15.	Dissatisfied with partner	15.35	7.872	0.361	NA	0.607
16.	Dissatisfied with other family member	15.35	8.841	0.005	NA	0.479
17.	Dissatisfied with sex life	15.24	8.125	0.318	NA	0.721
18.	Dissatisfied at work	15.09	8.931	0.045	NA	0.467
19.	Financial strain	15.56	8.012	0.289	NA	0.421
20.	Does any of the following bother you postmenopause	14.88	9.622	-0.246	NA	0.772
21.	Living alone	15.32	7.377	0.427	NA	0.380

[Table/Fig-3]: Cronbach’s alpha statistics for 21 items.

Cronbach’s alpha		Cronbach’s alpha based on standardised items				No. of items
0.772		0.771				20
Sr. No.	Items studied in questionnaire	Scale mean if item deleted	Scale variance if item deleted	Corrected item-Total correlation	Squared multiple correlation	Cronbach’s alpha if item deleted
1	Employment status	14.56	8.254	0.262	NA	0.498
2	Type of family	14.35	9.144	0.072	NA	0.636
3	No. of children	13.09	9.174	0.113	NA	0.627
4	Education	14.18	8.635	0.092	NA	0.544
5	Domicile condition	14.12	8.592	0.335	NA	0.593
6	Hysterectomy	14.26	10.201	-0.261	NA	0.589
7	Oophorectomy	14.03	9.423	0.031	NA	0.537
8	C-section	14.15	8.917	0.189	NA	0.516
9	Chronic diseases and medical history	14.00	8.121	0.264	NA	0.697
10	Somatic symptoms	13.74	8.382	0.288	NA	0.695
11	Musculoskeletal problems	14.03	8.878	0.166	NA	0.519
12	How frequently you exercise?	14.14	9.330	0.014	NA	0.540
13	Type of exercises	13.70	8.379	0.284	NA	0.537
14	Life event	13.29	9.426	-0.017	NA	0.551
15	Dissatisfied with partner	14.24	8.307	0.386	NA	0.680
16	Dissatisfied with other family members	14.24	9.337	0.017	NA	0.544
17	Dissatisfied with sex life	14.12	8.531	0.360	NA	0.589
18	Difficulty at work	13.97	9.302	0.135	NA	0.525
19	Financial strain	14.44	8.315	0.362	NA	0.683
20	Does any of the following bother you postmenopause?	14.21	7.805	0.447	NA	0.658

[Table/Fig-4]: Statistics of Cronbach’s alpha for 20 items.

## DISCUSSION

In the present study, a self-structured questionnaire was developed and was checked for its reliability and validity. The questionnaire was developed with aim to address multiple domains related to physical and mental health of postmenopausal women in a limited population of Gurugram, India. There is a difference of lifestyle in terms of physical activity behaviours, dietary intake and socio-economic factors in rural and urban areas which impacts overall health and quality of life of women [13]. With a significant number of women belonging to the status of menopause, it is crucial to understand the status of psycho-physical fitness, associated risk factors among postmenopausal women, so that a comprehensive health framework can be designed that would help in devising educational programmes to help them live an independent and healthier life in the later stages of their life.

Although there are many studies that have evaluated health of postmenopausal women in India, authors came across studies that have utilised different questionnaires factors affecting health of menopausal women. A recent hospital-based study by Senthilvel S et al., used 2 different questionnaires to assess menopausal symptoms and socioeconomic factors affecting health of postmenopausal women [14]. Similarly, a study by Ganapathy T and Al Furaikh SS utilised Menopause Specific Quality of Life questionnaire (MENQOL) to assess menopause related health issues and a self-structured questionnaire that evaluated socio demographic factors that did not include information like Medical history, physical and psychological health status [15]. MENQOL assess Menopause specific symptoms mainly vasomotor and physical health issues but it lacks information personal history, medical status and factors affecting physical fitness and mental health of postmenopausal women [16].

The study questionnaire had 4 sub sections which included all information like demographic details, medical health status, physical health status and psychological health status. To assess internal consistency of the questionnaire, Cronbach's alpha value was calculated, the value of which was acceptable (0.772) so it can be considered a reliable tool to identify factors affecting health of menopausal women. Cronbach alpha value more than 0.9 is considered as excellent in terms of internal consistency of questionnaire and value less than 0.5 is considered unacceptable [17]. The internal reliability of the questionnaire is similar to a study by Pathak RA which studied reliability and validity of Menopausal Rating Scale in a population of Gujarat. The Cronbach alpha value of questionnaire is 0.738 which is considered as acceptable [18]. Also, similar results were seen in a study that assessed reliability and validity of menopause attitude assessment scale among women living in district of Mahmudiye. The questionnaire had 13 items and Cronbach's alpha value of 0.744 [19]. Current study had a CVI of 0.80 which is similar with menopause symptoms severity inventory-38 with CVI 0.87 [20].

## Limitation(s)

The study was done on a selected population of Gurugram. It's generalisability beyond population of Gurugram was unknown

and should be tested. Questionnaire did not include food habits of postmenopausal women.

## CONCLUSION(S)

Based on the results of the study it can be concluded that questionnaire possessed good content and face validity and acceptable reliability. As such, the questionnaire can be utilised to evaluate factors affecting physical and mental health status of postmenopausal women as it is a reliable and valid tool.

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### Self-Structured Questionnaire to assess Health components and associated factors among Post-Menopausal women

#### Section 1: DEMOGRAPHIC DETAILS

Name- \_\_\_\_\_

Age- \_\_\_\_\_ years

Body Height- \_\_\_\_\_ meters

Body weight- \_\_\_\_\_ kilograms

Age at menopause- \_\_\_\_\_ years

Occupation- \_\_\_\_\_

Address- \_\_\_\_\_

#### 1. Employment status

Full time  Part time  Unemployed 

#### 2. Occupation

Housewife  Business  Service  Agriculture 

#### 3. If Working Specify Income per month

<10,000  10,000-20,000  20,000-30,000  30,000-40,000  40,000 and above 

#### 4. Marital Status

Married  Unmarried  Divorced  Widowed 

#### 5. Type of Family

Nuclear  Joint 

#### 6. No of Children

None  1  2 or more 

#### 7. Education

Schooling  Graduation  Post Graduation 

#### 8. Domicile Conditions

Sold household  With Husband/children 

#### 9. Personal Habits

Smoker- YES  No Alcoholic- YES  No 

#### SECTION 2: MEDICAL STATUS

#### 10. Gynecological history

Yes No

- Hysterectomy
- Oophorectomy
- C-section
- Any other Gynaecological surgery \_\_\_\_\_

#### 11. Chronic diseases and Medical History

Yes No

- Hypertension( उच्च रक्तचाप)
- Diabetes( मधुमेह)
- Thrombosis,
- Myocardial Infarction (रोधगलन)
- Cancer, कर्क,
- Stroke, आघात,
- Chronic Obstructive Pulmonary Disease, लंबे समय तक फेफड़ों में रुकावट,
- Regular Use of Medication,

- Admitted to Hospital in last 5 years

#### 12. Somatic symptoms

Yes No

- Headache
- Musculoskeletal pain
- Feeling Cold
- Sweat
- Abdominal pain
- Breast tenderness
- Constipation
- Diarrhoea
- Nausea
- Shortness of Breath
- Sleeping problem
- Sexual difficulties
- Bladder problems

#### 13. Musculoskeletal problem

Joint pains  General body aches  History of fall and fracture 

Any other specify \_\_\_\_\_

#### SECTION 3: PHYSICAL ACTIVITY/FITNESS STATUS

#### 14. Do you Exercise? ( If the answer is NO, Please skip question no. 15)

Yes  No 

#### 15. If "NO" what is the reason for not exercising?

Lack of interest  Lack of time  Lack of facility  Financial constraint Family restriction  Lack of motivation  Lack of Stamina 

#### 16. How frequently you exercise in a week?

Infrequent (less than 3 times/week) Average (3-5 times/week) More frequent (more than 5 times/ week) 

#### 17. Type of Physical activity

Yes No

- Gym
- Zumba
- Aerobics
- Swimming
- Walk
- Yoga
- Swimming
- Self structured exercises at home

#### SECTION 4: PSYCHOLOGICAL STATUS

#### 18. Recent negative life events

None  One  Two 19. Living alone- Yes  No 20. Dissatisfied with partner Yes  No 21. Dissatisfied with other family members Yes  No 22. Dissatisfied with sex life Yes  No 23. Financial strain Yes  No 

#### 24. Does any of the following is bothering you since menopause

Yes No

1. Loss of fertility
2. Loss of attractiveness
3. Fear of aging
4. Loss of usefulness and status in society
5. Decline in physical health and stamina