Original Article

Level and Sociodemographic Determinants of Physical Dependencies in Middle-Aged Women of Rawalpindi District: A Cross-Sectional Study

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[2,4]*Conception of study*
[1] *Experimentation/Study conduction*
[2,3,4] *Analysis/Interpretation/Discussion*
[1,3] *Manuscript Writing*
[3] *Critical Review*
[4] *Facilitation and Material analysis*

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Abstract

Background: Data regarding possible risk factors/determinants for physical dependence in women in their early middle age and early adulthood was scarce. It is critical to identify the risk factors for physical dependence to lay the groundwork for the development of primary health interventions for women in their early adulthood and Middle Ages.

Objectives: This study was conducted to determine the level of physical dependence among middle aged women of Rawalpindi and to identify socio-demographic risk factors for physical dependence in young adult/middle aged women.

Materials and Methods: Participants with physical disabilities that occurred in childhood, those with hereditary diseases, and those with psychiatric illnesses preventing them from filling out the questionnaire were excluded from the study. The level of physical dependence was assessed using Barthel Index (BI) and 36-item Short Form Health Survey (SF-36). Descriptive statistics, student t-test, and Pearson correlation were applied.

Results: A total of 176 women were included in our study. The mean age of participants was 50.1 years. The mean BI score was 94. The mean Perceived Stress Scale score was 22.6. The PSS score was inversely correlated with role limitation due to physical function, well-being, social function, pain, and general health scoresthe . Age was inversely correlated with physical function, well-being, social function, pain, and general health scores.

Conclusion: Occupation status, presence of non-communicable disease, body aches, age, and stress are important risk factors that may contribute to the rising levels of disability and lower quality of life in middle-aged women.

Keywords: Burn out, Medical Errors, Physicians, Self-Report

Introduction

Women's health is a major topic in the field of public health due to its far-reaching effects on community health. The global burden of disease in women's health has shifted in the last few with the greatest burden of death and disability among women being attributed to non-communicable diseases.[1] Physical dependency is when a person requires substantial assistance in activities of daily living which can have a multifaceted effect on the life of the patients and their caregivers including financial difficulty, the requirement of proper caregivers, and a decrease in quality of life.[2] Women in the Post-menopausal stage or the latter part of their middle ages were previously thought to be a point when women became substantially more susceptible to physical disability [3] but new data suggests that this threshold age is decreasing, with a rapid rise in women developing non-communicable diseases like hypertension and diabetes, [4] which are the leading causes for disability in women.[1]

Current medical literature focuses on physiological changes in the elderly due to menopause and its relation with physical dependency and eventually disability.[5] Previous studies have highlighted that limiting physical impairments such as arthritis, eyesight problems, hearing difficulty, high blood pressure and weakness may greatly contribute to an increase in physical dependency. Osteoarthritis most common joint disease in the middle age group leads to pain and physical disability.[6]

Menopausal symptoms which can begin in the middle age years deteriorate physical, mental, social, and sexual health hence lowering the Quality of Life (QoL). [7] Decline in mental health and increased prevalence of depression have also contributed to an increase in the level of physical dependence.[5] Physical activity was also found to be a determinant of the levels of physical dependency among the aged.[6,7] Physical activity can play a role in improving physical function and reducing disability in older adults hence the odds of disability are lower in older adults who are active during either occupational or leisure time exercise domains.[8] A significant association was found between regular visits to family physicians and the level of physical dependence among adults older than 18 years.[9] Research also highlights the significance of social factors like education level and marital status were significantly associated with increased physical dependence.[2] Similarly in the working age recurrent headaches can lower Health-related quality of life (HRQoL).[9] Along with the sociodemographic factors; psychosocial factors like smoking, routine check-ups, commitment to one's health, giving value to one's health, and health appraisal that one's health is better compared to other people of the same age play an important role. Studies show that older women (aged 60-75 years) were more committed to their health as compared to middle-aged women (aged 40-60 years).[10]

Data regarding possible risk factors/ determinants for physical dependence in women in their early middle age and early adulthood was scarce. A possible reason for this knowledge gap is the gender differences in the screening of diseases traditionally thought to be more prevalent in men. This includes diseases like metabolic syndrome and cardiovascular diseases.[1] This can lead to lower standards of screening among women and the lack of a proper health plan to deal with the rise in non-communicable diseases in women and the physical dependency and health burden associated with it. This is why more research is

needed on this topic to close the aforementioned knowledge gap and lay the groundwork for the development of primary health interventions for women in their early adulthood and middle ages. This research goals are to determine the prevalence of physical dependence in middle aged women along with the sociodemographic risk factors .

Materials and Methods

This research was conducted in the Rawalpindi district of Pakistan. It was an analytical cross-sectional study that included middle-aged women (45 to 65) years old. The sample size of 176, with a prevalence of 8.7% and a population of 1 million, was calculated using the WHO sample size calculator. Convenience sampling (non-probability) was used to collect data. The study duration was 6 months. The inclusion criterion was to consider middle-aged women who were permanent residents of Rawalpindi district and consented to participate. The exclusion criteria was to not consider women with diagnosed psychiatric disorders and diagnosed congenital disorders. Middle-aged women were defined as women aged between 45 and 65 years at the time of data collection. Physically Dependent was defined as individuals below the median score on the Short-From 36 Health Survey.

Data was collected using a structured questionnaire. Informed consent was taken from all participants before the administration of the questionnaire. Sociodemographic data was collected. Standardized and validated questionnaires were used to evaluate the level of physical dependence and perceived stress. The 36-item Short Form Health Survey (SF-36) and the 10-item Barthel Index was used to assess the level of physical dependence. Perceived stress was assessed using PSS-10. A self-made questionnaire was used to evaluate sociodemographic factors.
Data was entered into and analysed by SPSS Version 25. Descriptive statistics were applied. Student T-test was applied. Multivariate linear regression was used to identify risk factors for physical dependence. Mediation and moderation analysis were applied. P-values less than 0.05 were considered statistically significant. Informed written consent was taken from all patients or their attendants. Personal data was kept confidential and was not disclosed.

Results

A total of 176 women were included in our study. Their Sociodemographic profile is shown in Table Ⅰ. The mean age of participants was 50.1 years. The mean BI score was 94. Mean scores for sub-scales of SF36 are shown in Fig1. Sociodemographic determinants of BI are shown in Table Ⅱ. The mean PSS score was 22.6. The

PSS score was inversely correlated with role limitation due to physical function, well-being, social function, pain, and general health scores. It was determined that stress negatively affects the health related domains of middle aged women, like their daily well being and overall health including both physical and mental health. Table Ⅲ shows sociodemographic determinants of physical function score. As shown in the table physical functions scores are more in working women and less in diabetic, hypertensive and those with history of aches. Age was inversely correlated with physical function, well-being, social function, pain, and general health scores. As a woman crosses middle age her health begins to gradually decline by a physiological phenomenon. The number of hours spent sitting or sleeping was not significantly correlated with BI or SF-36 scores. (Fig.2)

TABLE I SOCIODEMOGRAPHIC PROFILE OF PARTICIPANTS

Socio-demographic parameters	**N (%)**
Smoking	
Yes	3(1.7)
Nos	173(98.3)
Admission	
Yes	42(23.9)
No	112(63.6)
Diabetes	
No	145(82.4)
Yes	31(17.6)
Hypertension	
No	124(70.4)
Yes	52(29.5)
Asthma	
No	165(93.8)
Yes	11(6.3)
COPD	
No	171(97.2)
Yes	5(2.8)
Arthritis	
No	165(93.8)
Yes	11(6.3)
Cancer	
No	176(100)

Yes	0(0)
Aches	
No	44(25)
Yes	132(75)
Fall	
No	157(89.2)
Yes	19(10.8)
Occupation groups	
Unemployed	114(64.8)
Employed	62(35.2)

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TABLE Ⅱ: SOCIODEMOGRAPHIC DETERMINANTS OF BARTHEL INDEX

Parameter	**N**	**Mean**	**t-value**	**P-value**
Smoking			0.338	0.736
Yes	3	96.667		
No	173	94.0462		
Occupation groups			1.809	0.072
Employed	62	96.5323		
Unemployed	114	92.7632		
Hospital admission			-0.420	0.675
Yes	42	92.8571		
No	112	93.9286		
Diabetes			-3.731	0.000
Yes	31	86.2903		

No	145	95.7586		
Hypertension			-2.824	0.005
Yes	52	89.8077		
No	124	95.8871		
Asthma			0.117	0.907
Yes	11	94.5455		
No	165	94.0606		
COPD			0.325	0.746
Yes	5	96.0000		
No	171	94.0351		
Arthritis			-1.529	0.128
Yes	11	88.1818		
No	165	94.4848		
Aches			-1.445	0.150
Yes	132	93.2576		
No	44	96.5909		
Fall			-4.056	0.000
Yes	19	82.8947		
No	157	95.4459		

TABLE Ⅲ SOCIODEMOGRAPHIC DETERMINANTS OF PHYSICAL FUNCTION SCORE

PARAMETER	**N**	**MEAN (S.D)**	**T-Value**	**P-Value**
		PHYSICAL FUNCTION		
SMOKING				

YES	3	78.3333(29.29733)	1.164	0.246
NO	173	60.3179(26.53514)		
OCCUPATION				
EMPLOYED	62	55.7018(36.76681)	3.431	0.001
UNEMPLOYED	114	50.8065(34.32484)		
HOSPITAL ADMINISTRATION				
YES	42	54.1667(26.64)	-1.699	0.091
NO	112	62.5(27.27)		
DIABETES				
YES	31	51.9355(26.13)	-2.022	0.045
NO	145	62.4828(26.41)		
HYPERTENSION				
YES	52	54.1346(26.93)	-2.117	0.036
NO	124	63.3468(26.08)		
ASTHMA				

YES	11	59.0909(20.35)	-0.197	0.844
NO	165	60.7273(27.00)		
COPD				
YES	5	56(23.29)	-0.394	0.694
NO	171	60.7602(26.73)		
ARTHRITIS				
YES	11	51.3636(23.78)	-1.194	0.234
NO	165	61.2424(26.72)		
ACHES				
YES	132	57.3485(26.08)	-2.89	0.004
NO	44	70.4545(25.96)		
FALLS				
YES	19	57.6316(29.83)	-0.518	0.605
NO	157	60.9873(26.25)		

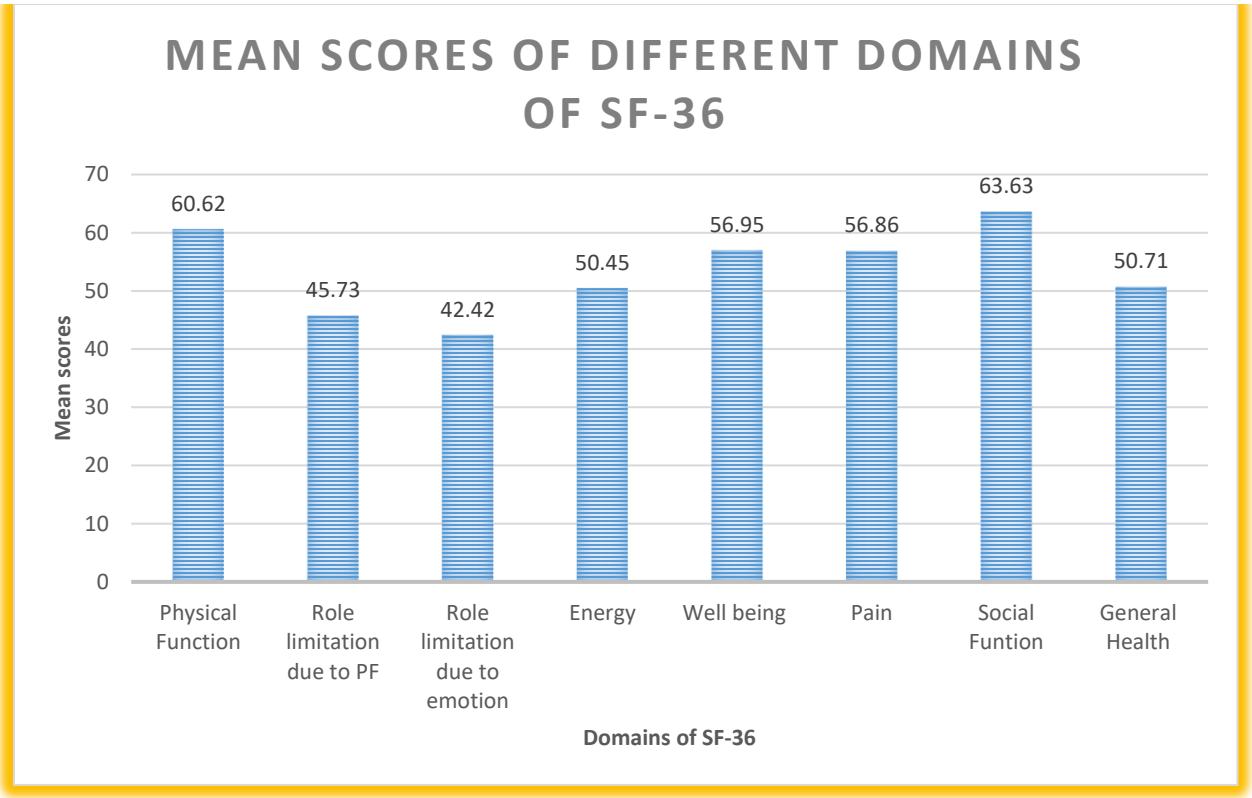

FIGURE 1 MEAN SCORES OF DIFFERENT DOMAINS OF SF-36

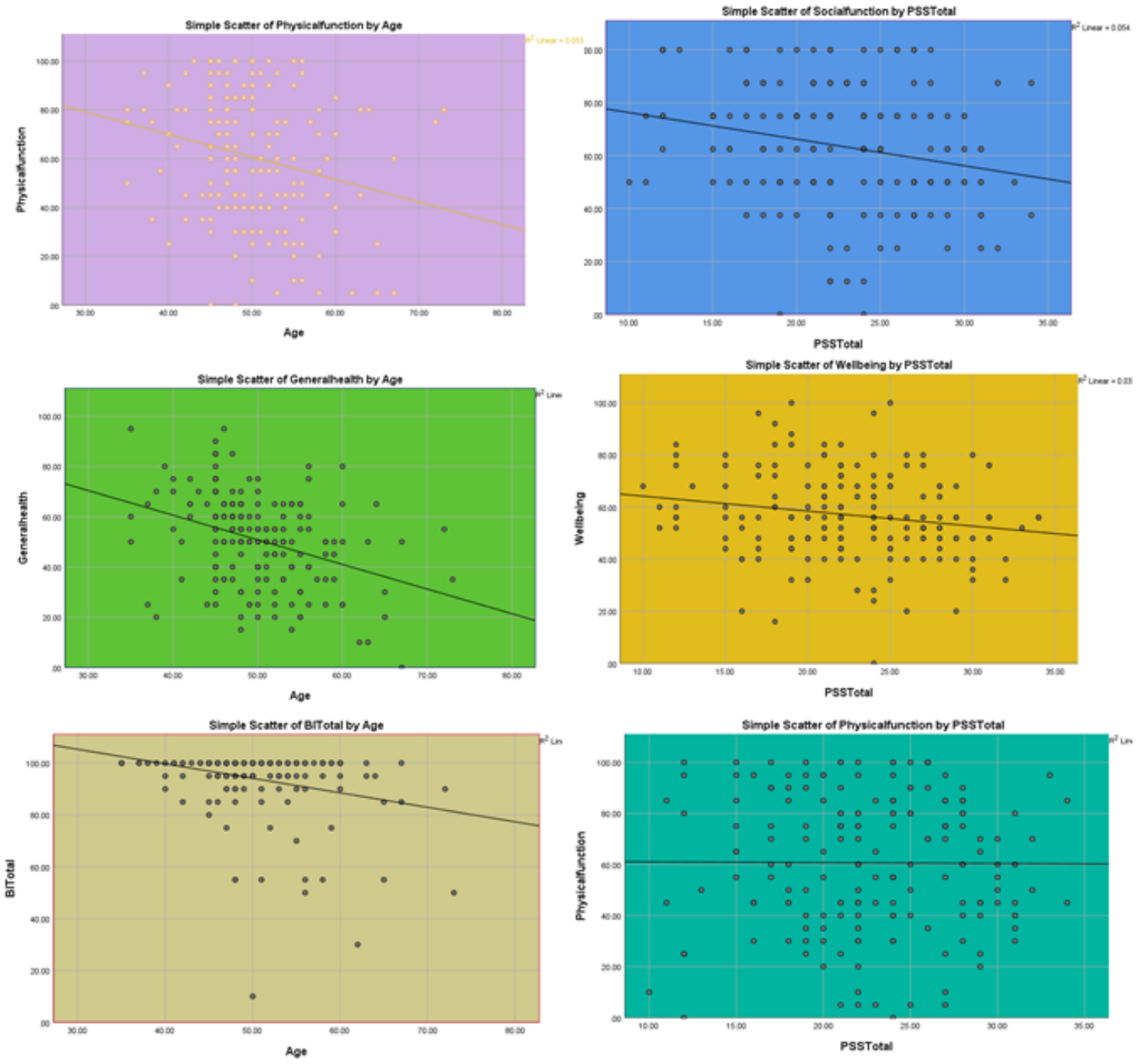

FIGURE 2 SCATTER PLOTS SHOWING THE CORRELATION OF AGE AND STRESS WITH PHYSICAL LIMITATIONS

Discussion

Disability is a major cause of morbidity and a decrease in quality of life. Development of disability before geriatric age can lead to a significant decrease in Disability-Adjusted Life Years (DALY's). Current health trends indicate a rise in the earlier development of disability and its associated sequelae including physical dependency, a decreased quality of life, and an increased economic health burden. Our study also found an increase in the incidence of disability (subjects with BI score greater than mean) as compared to other previously conducted researches [11].

Upon assessment of risk factors that may have led to an increase in the level of disability and physical dependence in middle-aged women, we found the occupation status of the subject to have a significant role in the level of disability and quality of life ($P<0.05$). Our study found that working women reported higher levels of physical function, energy, general health, and Barthel index score. These women also recorded lower levels of pain as compared to non-working women. This finding is in concordance with previous data suggesting the importance of maintaining a level of physical activity to maintain optimum levels of health and prevent early-onset disability [12].

This highlights the importance of maintaining some form of physical activity to maintain health as modern sedentary lifestyles and altered eating habits have led to an imbalance between modern-day diets and physical activity [13]. This has contributed to the rise in levels of metabolic diseases, obesity, and levels of disability and physical dependency [14].

A common complaint found in middle-aged women is body aches. Our study found a significant difference in general health, pain, social function, role limitation, and physical function in women who reported symptoms of body aches, compared with those that didn't ($P<0.05$). Our data suggested that the presence of body aches decreased levels of general health, social function, and role limitation with an increase in pain experienced. This finding highlights the importance of mild symptoms like body aches that are usually ignored. A common cause of body aches is poor posture, which is a very prevalent condition [15]. This coupled with increased sedentary lifestyles and the use of electronic devices like mobiles further exacerbates the early development of body aches. Earlier identification of people more susceptible to the development of body aches can help greatly in launching primary interventional strategies to curb the number of women who experience body aches and hence lower the number of middle-aged women who develop early disability.

Our research also highlights that the presence of non-communicable diseases such as diabetes mellitus, arthritis, hypertension, COPD, and asthma have an inverse correlation with physical function, general well-being, performance of roles, social interactions, and healthy life [16]. Globally chronic diseases present the major cause of morbidity and mortality among all age groups and are major hindrances to physical activities in younger and middle age groups [17]. Development of these diseases earlier in life can significantly lead to a decrease in DALY's and a decrease in quality of life due to the extensive health precaution and lifestyle changes that are recommended during the treatment of these diseases.

Our study also suggests that increasing age, physical and social well-being, and general health decreased and the same is evident from the earlier studies which emphasized on abilities to walk a certain distance and associated limitations [18]. The data show that limitations in physical activity are much higher in older age groups than middle age populations but that does not omit the dependency in middle-aged women which is still the problem that needs to be addressed.

Stress was also found to have a significant correlation with role limitation due to physical function, well-being, social function, pain, and general health. These results further support previous studies on the physical effects of stress [19]. Modern-day advancements in stress management are promising and are effective in significantly reducing stress [20]. Educating middle-aged women on stress management strategies can be an effective way to increase their quality of life and decrease the physical sequelae of stress. The ability to manage stress can also augment other parts of women's lives and can thus greatly increase their general health and well-being as well.

Due to the study design utilized in this research endeavour, there are certain limitations of this study. The data collection technique for this study was non-randomized convenience sampling which may affect the applicability and generalizability of the results of this study to the general population. Other than this the cross-sectional study design prevented the collection of longitudinal data which can be important in analysing changing trends in disability and quality of life in women as they age. Further research on the topic of disability in middle-aged women should include longitudinal data and incorporate the cohort study design to obtain stronger evidence regarding risk factors that contribute to increasing disability in middle-aged women.

Conclusion

Occupation status, presence of non-communicable disease, body aches, age, and stress are important risk factors that may contribute to the rising levels of disability and lower quality of life in middle-aged women. Longitudinal studies need to be conducted to identify individuals at higher risk of developing disability and decreased quality of life to launch targeted primary health programs.

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