

Predictors of Pressure Ulcers among Bedridden Elderly Patients

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Abstract

Background: Pressure ulcers (PUs) are a serious health problem worldwide, once they develop, they become difficult to treat. PUs are frequent occurrence in the bedridden elderly, especially those who are over 65 years old. **The aim** of this study was to assess knowledge, attitude of caregivers and assess risk factors of pressure ulcers among elderly patients. **Methodology:** A descriptive design was utilized to conduct this study which was conducted in orthopedic department at the surgical hospital at the Zagazig University Hospitals. The sample included 60 caregivers of elderly patients. Tools used for data collection was a structured interview questionnaire which composed of two parts; Demographic characteristics and medical history of the studied caregivers and elderly patients, Caregivers' knowledge of pressure ulcers structured interview questionnaire, Caregivers' attitude toward Pressure Ulcer Prevention (APUP) questionnaire and Braden scale of proneness to bedsore development. **Results:** Among the studied caregivers of elderly patients, there was 83.3% of studied caregivers had inadequate knowledge about prevention of pressure ulcers, 70.0% had negative attitude toward prevention of PUs, 56.7 of the elderly patients had moderate risk factors of pressure ulcers while 43.3% of them had high risk. A statistically significant positive correlation between caregivers' knowledge, attitude and elderly total mean score of Braden scale. **Conclusion:** The majority of elderly patients' caregivers were illiterate, had inadequate knowledge, negative attitude toward prevention of pressure ulcers and more half of elderly had moderate risk of pressure ulcers. **Recommendation:** Developing training and educational programs to improve caregivers' knowledge and attitude toward prevention of pressure ulcers and reduce risk factors of developing pressure ulcers among bedridden elderly patients.

Keywords: pressure ulcers (PUs), Elderly patients, Knowledge, attitude, Braden scale

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Introduction

With the advent of an aging population, various diseases and the decline of organ functions in the elderly significantly threaten their health and survival (Weimann et al., 2023). Some elderly people lose the ability to care for themselves due to aging, post-major surgery, stroke, diabetes, fractures, dementia and have to stay in bed for long periods (Yuan et al., 2021) making it more susceptible to diseases and injuries. There are changes in the structure of the skin, impaired mobility, and the cognitive pattern (Ibrahiem & El-Maksoud, 2021). The structural and functional changes occurring in the elderly patients gives risk to skin problems and related complications such as pressure ulcers (Alhammedi & Ogale, 2020).

Pressure ulcers (PUs), also known as pressure injury (PI), refers to localized damage to the skin or subcutaneous tissue caused by pressure or combined pressure and shear forces, usually occurring over bony prominences, and is common in patients who are bedridden for long periods, have fractures, or suffer from critical illnesses (Lin et al., 2020).

The most common areas for pressure ulcers include the sacrum, ischium, greater trochanter, coccyx, heels, malleolus (lateral than medial), and occiput. Pressure over a bony prominence causes tissue ischemia in the skin, muscle, and the fascia between the skin surface and bone (El sayed & Weheida, 2019).

In Egypt statistics of incidence or prevalence rate of pressure ulcer among immobilized patients are totally lacking, because of the fear of legal accountability and it consider an indicator for knowledge and practices defect of nurses toward prevention and management of pressure ulcer. So only one study in 2009 according to statistics record at health insurance organization in Alexandria, indicate that pressure ulcer ranged from 40% to 50%. The complication of PU was ranged from 20% to 30% in each department (Ali et al., 2019).

Nowadays, pressure ulcers are the third most costly disease after cancers and cardiovascular diseases. The mortality rates from this disease are 2 to 6 times as much as from other diseases, with 60,000 deaths annually due to this complication (Borojeny et al., 2020). Also pressure ulcer is a serious health problem that may occur in the community after undergoing post family care from the hospital. Therefore, a numbers of strategies had been used to reduce PU rate and improve patient quality of care such as- education of health care member, family caregivers, availability of PU guidelines and equipment used to reduce PU (Lin et al., 2020).

Elderly bedridden patients largely depend on family members or caregivers for daily care, as they are mostly unable to care for themselves. This often leads to delayed detection of PUs. Furthermore, Lack of caregiver s' knowledge and practices related to pressure ulcers prevention after patients discharge from hospital contributes significantly to the occurrence or worsening of pressure ulcers (Esparza et al., 2021). Therefore it becomes important to educate caregivers on how to undertake a comprehensive skin assessment that includes the techniques for identifying blanching response, localized heat, and edema, changes in skin color and texture and induration.

The care givers need to be trained to perform this task correctly and safely to prevent pressure ulcers (Mohammed et al., 2020).

Pressure ulcer (PU) prevention strategies are varied and include risk assessment and appropriate preventive care planning based on outcomes from this risk assessment (Shanley et al., 2022). Prevention requires an on-going risk assessment, consideration of casual factors, implementation of prevention strategies and the selection of an appropriate use of support surfaces. When an assessment identifies a patient at risk of pressure ulcers, interventions should be implemented immediately (Grillo et al., 2022).

Gerontological nurses play a major role in prevention of pressure ulcer, as she is the one who early recognize the signs of pressure ulcer during patients stay in hospitals with immobility or fracture. She should observe for the adequate integrity of the skin .and should encourage the patients and caregivers to take all measurements to prevent ulcer through identify risk assessment (Tesfa et al., 2022). Also, the nurses play an important role in training the family caregivers about how to prevent and manage pressure ulcers occurrence by using precautions such as risk assessment, prevention of harm, ensuring comfort, providing safe environments to assist patients attain optimum health (Mohammed et al., 2020).

Significance of the study

Pressure ulcers (PUs) are common complications in some elderly patients, especially in hip fractured elderly and other patients who have difficulty turning over in bed and mobility (Song et al., 2019). PUs had been recognized as one of most physically and financial debilitating complication in the 20th century, (Ibrahim& Mokhtar, 2020). The mortality rates from this disease are 2 to 6 times as much as from other diseases, with 60,000 deaths annually due to this complication (Borojeny et al., 2020). Furthermore, Lack of caregiver s' knowledge and negative attitude related to pressure ulcers prevention after patients discharge from hospital contributes significantly to the occurrence or worsening of pressure ulcers (Esparza et al., 2021).

Aim of the study

This study aimed to assess knowledge, attitude of caregivers and risk factors of pressure ulcers among elderly patients.

Research question:

What is the knowledge level and attitude of caregivers toward prevention of pressure ulcers among elderly patients?

What are the risk factors of pressure ulcers among bedridden elderly patients?

Method

Study Design

A descriptive design was utilized to conduct this study which was conducted in orthopedic department at the surgical hospital at the Zagazig University Hospitals.

Sample

A purposive sample of (60) caregivers of elderly patients from the mentioned setting who fulfilled the following inclusion criteria: Caregivers are informal (family caregivers) male or female, free from disability, which may interfere with caring for their elderly patients, able to communicate and agree to participate in the study, For the elderly patients, aged 60 years who are bed ridden free from pressure ulcers.

Sample size calculation

It was calculated by statistical computer program (Epi-Info software version 6.04). It was based on assuming the percentage of bedridden elderly patient in orthopedic department 54%, (AL Khayyal et al., 2016) among 100 elderly patients who were done orthopedic surgery and stay on bed, with power 80% and at confidence level 95%, the sample size calculated was 60 elderly.

Tool of data collection

To gather the required data, three tools were used .**Tool I:** an interview questionnaire that was developed by the researchers based on the literature review. It is composed of three parts: Caregivers and elderly patients' demographic characteristics, Body mass index for the elderly patients (BMI) and Medical history of the studied family caregivers and elderly patients. caregivers' data, such as (age, sex, marital status, educational level, income, occupation and relation of the family caregiver to the patient, as well as items for elderly patients' such as (age, sex, patient's diagnosis, feeding, urination and bowel movement).

Tool II: Caregivers' knowledge of pressure ulcers structured interview questionnaire

This tool is adapted from the knowledge assessment instrument that was developed by (Rani, 2016) to assess caregivers' knowledge about PUs. It consists of 30 multiple choices questions, divided to three parts: part I, it consists of skin and its function questions (included 3 questions). Part II: it consists of questions about pressure ulcers (included 10 questions). Part III: it consists of questions about pressure ulcers prevention (included 17 questions).

Scoring system, There were five choices, out of which one was correct answer and the remaining four were wrong answers. A score was rewarded for the wrong response. Thus there were 30 maximum obtainable scores. The level of knowledge was graded based on percentage of scores obtained Level of knowledge

Adequate (Above 75%)

Moderate ($50 \leq 75\%$)

Inadequate (Below 50%)

Tool III: Attitude toward Pressure Ulcer Prevention (APUP) questionnaire.

The APUP tool was developed by (Beeckman et al., 2010). It had a 13-item questionnaire that measure attitudes of caregivers toward PU prevention. The questionnaire comprised five subscales: personal competency to prevent PUs, priority of PU prevention, impact of PUs, responsibility in PU prevention, and confidence in the effectiveness of prevention.

Scoring system

A 3-point Likert scale was designed to collect the data (1 = disagree, 2 = neutral, 3 = agree). The sum of the scores was calculated to obtain a total attitude score. Higher scores indicated more positive attitudes whereas low scores represent negative attitudes.

- The level is positive if score $\geq 60\%$ of the maximum score.
- The level is negative if score $< 60\%$ of the maximum score.

Tool IV: Braden scale of proneness to bedsore development (Braden & Bergstrom., 1988).

It is used to assess the risk factors for the formation of pressure ulcers among the bedridden patients. It involves the assessment of the patient on six parameters, i.e., "sensory perception," "moisture," "activity," "mobility," "nutrition," and "friction and shear." The maximum score is 23, and the minimum score is 6. The patient is considered to be "at risk" of developing bedsore if the score is between 15 and 18, at "moderate risk" if the score is 13–14, at "high risk" if the score is 10–12 and at "very high risk" if the score is 9 or less.

Statistical analysis

The collected data were organized, tabulated, and statistically analyzed using the Statistical Package for Social Sciences (SPSS) version 22. Data were presented using descriptive statistics in the form of frequencies and percentages for qualitative variables, and means, standard deviations, and medians for quantitative variables. Cronbach alpha coefficient was calculated to assess the reliability of the developed scales through their internal consistency. Quantitative continuous data were compared using the non-parametric Mann-Whitney or Kruskal-Wallis tests and paired t test. Qualitative categorical variables were compared using chi-square test. Whenever the expected values in one or more of the cells in a 2x2 tables was less than 5, Fisher exact test was used instead. Spearman rank correlation was used for assessment of the inter-relationships among quantitative variables and ranked ones. In order to identify the independent predictors of the scores of knowledge and practices of caregivers for preventing pressure ulcers among the elderly multiple linear regression analysis was used and analysis of variance for the full regression models was done. Statistical significance was considered at p-value < 0.05 .

Results

Demographic characteristics and medical history of the studied caregivers (N=60)

Table 1 reveals that the studied caregivers' age ranged between 25 and 66 years, with mean 43.17 ± 9.65 , with more females (51.7%). In addition, 63.3%, 86.7% and 35.0% of the studied caregivers were living in rural area, married and illiterate respectively. As well, 66.7% of them were housewife. Concerning the monthly income, 60.0 % of the studied caregivers had sufficient income. Also, 66.7% of the studied caregivers were sons of elderly. The same table also reveals 85.0% of the studied caregivers weren't having chronic diseases. Only 15.0% of them were having chronic diseases. Where, the most common diseases were hypertension (11.7%) and diabetes mellitus (8.3%).

Demographic characteristics and medical history of the studied elderly (N=60)

Table 2 demonstrates that the studied elderly s' age ranged between 60 and 85 years, with mean 68.98 ± 6.87 . In addition, 60.0% of the studied elderly had hip joint replacement and 56.7% of them were staying in bed from month to 3 months and 93.3% of the studied elderly were living with family. Also, 75.0% of the studied elderly were having chronic diseases, the most commonly diseases were hypertension (55.0%) and diabetes (45.0%).

Total mean score of Caregivers' knowledge of pressure ulcers pre –post training program

Table 3 reveals that 83.3% of caregivers had inadequate knowledge about prevention of pressure ulcers. Also, total knowledge means score was 9.07 ± 5.32 .

Total mean score of Caregivers 'attitude toward Pressure Ulcer Prevention (APUP) throughout the study phases

Table 4 illustrates 70.0% of caregivers had negative attitude toward prevention of PUs. Also, demonstrates statistically significant difference in total mean score of Caregivers' attitude toward Pressure Ulcer Prevention ($p < 0.001$). Total mean score of Caregivers' attitude were 11.23 ± 6.21

Total Braden scale of proneness to pressure ulcers development among elderly patients

Table 5 reveals that there were highly statistically significant difference in total Braden scale of proneness to pressure ulcers development among elderly patients ($p < 0.001$). Total Braden scale mean score was 11.38 ± 2.61 .

Correlations and predictors of knowledge, attitude, practice of caregivers and elderly Braden scale.

Table 6 illustrates statistically significant positive correlation between caregivers' knowledge, attitude and elderly total mean score of Braden scale.

Best fitting multiple linear regression model for knowledge score

Table 7 the educational level was the only a statistically significant independent positive predictors of knowledge score.

Best fitting multiple linear regression model for attitude score

Table 8 shows that educational level had statistically significant positive predictors for attitude score.

Best fitting multiple linear regression model for Braden scale score

Table 9 illustrates statistically significant independent negative predictors of this score were the elderly's' age, stay length in bed.

Discussion

The findings of the current study revealed that caregivers of elderly patients had inadequate knowledge about prevention of pressure ulcer. As the majority of the studied caregivers had inadequate total knowledge regarding to pressure ulcers prevention, this might be contributing to the majority of the studied caregivers were illiterate.

These findings are in agreement with **Mohammed et al. (2020)** in Emirate who found that an inadequate knowledge among caregivers about function and caring of skin and meaning of pressure ulcers pre- the training program. Another study in Egypt by **Ibrahim & Abd El-Maksoud. (2021)** revealed that the knowledge of caregivers is below the minimum acceptable level, i.e. >50% of caregivers had poor knowledge about PUs prevention before the training program. Similarly, **Karimi et al. (2018)** in Iran found that family caregivers did not have sufficient knowledge about pressure ulcers.

Considering multiple linear regression analysis, the recent study indicated that the educational level was the only a statistically significant independent positive predictors of knowledge score. Similarly, **Farzan et al. (2023)** in Iran who found that Education level played a role in caregivers' knowledge of PUs prevention as well. Three researches conducted in Iran, Nepal, and Egypt showed that caregivers' knowledge of PU prevention rises with higher educational attainment. This association may result from educated individuals' higher capacity to access knowledge from a variety of sources.

Regarding Caregivers' attitude toward Pressure Ulcer Prevention, this study revealed that the majority of studied caregivers had negative attitude toward Pressure Ulcer Prevention where total mean score of Caregivers' attitude was 11.23 ± 6.21 . This might be due to their lack of knowledge and ignorance about the seriousness of pressure ulcers due to most of them illiterate and living in rural area there was defect in mass media make them found difficult to gain the correct knowledge about pressure ulcers prevention. They said that "pressure ulcer prevention is of lower priority than other tasks". In support of this, the same finding was revealed in multiple linear regression analysis showed that educational level had statistically significant positive predictors for attitude score.

This is similar with **Ibrahiem & Abd El-Maksoud. (2021)** in Egypt who found that the majority of the studied caregivers had a negative attitude toward PUs prevention in the pre-training program. Similarly, study done in Nigeria by **Ingwu et al. (2019)** to determine the knowledge and practice of caregivers toward PU prevention among orthopedic patients reported that the majority of caregivers had a poor attitude toward the prevention practice of PUs. Also this point confirmed by **Awad et al. (2020)** in Alexandria who stated that the majority of the study subjects had a negative attitude toward PU prevention.

In contrast with the current study, **Kaddourah et al. (2019)** in Saudi Arabia indicated that most of the caregivers had a positive attitude toward bedsore prevention practice. Also, **Kim & Lee. (2019)** in Korea found that 68.4% of the participants in a study showed positive attitudes regarding PU prevention.

Regarding Braden scale of proneness to pressure ulcers development among elderly patients

The current study indicated that two third of the studied elderly patients had slightly limited concerning sensory perception. As regard activity, all of the elderly patients were bedfast. Concerning mobility more half of them had very limited, had probably inadequate regarding nutrition and had problem regarding friction and shear, where most of elderly patients had high risk for pressure ulcers development where total Braden scale mean score 11.38 ± 2.61 . This might

be due to the majority of elderly patients had chronic diseases especially HTN and DM in addition to more than half of them had hip joint replacement surgery that needed for staying in bed 3 months also used urinary catheter and majority of them were being overweight who requiring excessive effort from caregivers to change their position as seen from the current study. All of these factors lead to high risk of pressure ulcers development.

This findings are in agreement with **Ibrahim & Mokhtar.(2020)** in Egypt who found there was a statistically significant regarding the total Braden scale, where the majority of the studied patients had a high risks of pressure ulcers.

In contrast with the current study, **Adibelli& Korkmaz. (2019)** in Turkey found the Braden scale total score and pressure ulcers risk factors (age, gender, length of stay, co-morbidity) showed positive statistically significant associations with the Braden Scale total score.

Concerning multivariate analysis of the Braden scale score, this study illustrated that statistically significant independent negative predictors of this score were the elderly's age, length stay in bed. In congruence with this, **soliman et al. (2022)** in Benha illustrated that pressure ulcer among the studied patients which assessed by Braden Scale was best predicted by patients' age, weight, chronic disease, and length of hospital stay there was variance of Braden Scale assessment of patients at risk for pressure ulcer as well as there was highly significant statistical positive effect on total patients Braden Scale at ($p = < 0.01^{**}$).

Concerning Correlation between elderly' total mean score of Braden scale, caregivers' knowledge and attitude. The current study result findings shows that statistically significant positive correlation between caregiver's knowledge, attitude and elderly patients total mean score of Braden scale. This is can be explained by the attitude of caregivers for prevention of pressure ulcers may be quickly enhanced, especially if it was connected to an appropriate source of scientific knowledge and this lead to decrease high risk for developing pressure ulcers among bedridden elderly patients.

This is go line with **saad et al. (2021)** in Egypt who revealed that Concern connection between caregiver's knowledge and practice throughout the program stages and total Braden scale of the elderly patients. Prior to the adoption of the program, there was a statistically significant association between caregivers' knowledge, practice, and the whole Braden scale (risk levels for PI).

This point is confirmed with **Ibrahiem&Abd El-Maksoud. (2021)** in Egypt who found that statistically significant positive correlations between the scores of the knowledge and attitude among the studied caregivers. Similarly, **Mohamed & Weheida.(2015)** in Egypt who found that the results were obvious that there was a statistically significant impact on the improvement of knowledge on PU's prevention, which had an impact on the attitude of caregivers. This is also in agreement with **Abd Elhameed & Gabr. (2024)** in Egypt who indicated a statistically positive correlation between total knowledge score levels and attitude they ensured that adequate knowledge affects directly the caregivers attitudes as well as practice .

Conclusion

The study findings were concluded that the studied caregivers had inadequate knowledge, negative attitude regarding pressure ulcers prevention among bedridden elderly patients.

Additionally the educational level was statistically significant independent positive predictors of knowledge and attitude score of caregivers, where the caregivers had high level of education had improvement in knowledge and attitude toward prevention of pressure ulcers. Finally there were statistically significant positive correlation between caregivers knowledge, attitude and elderly total mean score of Braden scale.

Recommendation

Training program should be done for elderly patients' caregivers to enhance knowledge and attitude toward prevention of pressure ulcers among bedridden elderly patients. Establish educational program about pressure ulcers for elderly caregivers to increase competency. Further research can be conducted on larger sample of caregivers including regular evaluation to assess the care provided to the bedridden elderly patients at home.

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Declaration of Conflicting Interests

The Author(s) declares(s) that there is no conflict of interest.

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Table 1: Demographic characteristics and medical history of the studied caregivers (N=60)

Demographic characteristics	(n=60)	
	Frequency	Percent
Age group: /year		
25- 44	32	53.3
45- 66	28	46.7
Mean ± SD	43.17± 9.65	
(range)	(25 – 66)	
Gender:		
Male	29	48.3
Female	31	51.7

Residence:		
Rural	38	63.3
Urban	22	36.7
Education:		
Not read & write	21	35.0
Read & write	12	20.0
Basic education	7	11.7
Intermediate education	14	23.3
University / postgraduate	6	10.0
Marital status:		
Married	52	86.7
Unmarried [Widow/ divorced single]	8	13.3
Occupation:		
Crafts	9	15.0
Farmer	3	5.0
Employee	8	13.3
Housewife	40	66.7
Relative degree to elderly:		
Spouse	11	18.3
Sons	40	66.7
Others	9	15.0
Have chronic diseases:	9	15.0
Types of chronic diseases:@		
HTN	7	11.7
DM	5	8.3

@ Not mutually exclusive

Table 2: Demographic characteristics and medical history of the studied elderly (N=60)

Demographic characteristics	(n=60)	
	Frequency	Percent
Age group: /year		
60-	35	58.3
70-85	25	41.7
Mean ± SD	68.98 ± 6.87	
(range)	(60 – 85)	
Diagnosis:		
Hip joint replacement	36	60.0
Installing slats and screws	11	18.3
Pelvic joint replacement	13	21.7
Staying in bed:		
Less than 30 days	5	8.3
Month – 3 months	34	56.7
4 months – 6 months	14	23.3
More than 6 months	7	11.7
Living with whom:		
Alone	4	6.7
With family	56	93.3
Have chronic diseases:	45	75.0
Types of chronic diseases:®		
HTN	33	55.0
DM	27	45.0
Heart	2	3.3
Liver	3	5.0
Anemia	1	1.7

Allergy	1	1.7
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@ Not mutually exclusive

Table 3: Caregivers' knowledge of pressure ulcers throughout the study phases

Total Knowledge	(n=60)		Friedman Test	(p-value)
	No	%		
Total Knowledge level:				
Adequate (Above 75%)	0	0.0	60.00	<0.001**
Moderate (50 ± 75%)	10	16.7		
Inadequate (Below 50%)	50	83.3		
Total Knowledge mean score	M ± SD		Paired t-test	(p-value)
	9.07 ± 5.32		44.22	<0.001**

*: Significant

** : Highly significant

Table 4: Caregivers' attitude toward Pressure Ulcer Prevention (APUP) throughout the study phases

Attitude domains	(n=60)	Paired t-test	(p-value)
	M ± SD		
Personal competency	2.30 ± 1.92	13.33	<0.001**
Priority of PU prevention	2.58 ± 1.92	13.53	<0.001**
Impact of pus	2.78 ± 1.67	14.93	<0.001**
Responsibility in PU	1.72 ± 1.17	12.62	<0.001**

Confidence in the effectiveness of prevention	1.85 ± .94	10.48	<0.001**
Total mean score	11.23 ± 6.21	18.35	<0.001**

Table 5: Total Braden scale of proneness to pressure ulcers development among elderly patients

Assessment Parameters	(n=60)		Friedman Test	(p-value)
	No	%		
Low risk: 18-23	0	0.0	47.00	<0.001**
Moderate Risk: 11-17	34	56.7		
High risk: less than 11	26	43.3		
Total Braden scale mean score	M ± SD		Paired t-test	(p-value)
	11.38 ± 2.61		24.94	<0.001**

Table 6: Correlation between elderly' total mean score of Braden scale, caregivers' knowledge and attitude

Scores	Total mean score		
	Knowledge	Attitude	Braden scale
Knowledge			
Attitude	.362**		
Braden scale	.546**	.414**	

R: Pearson's correlation coefficient

(*) statistically significant at p<0.05

(**) statistically significant at p<0.01

Table 7: Best fitting multiple linear regression model for knowledge score

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	1.683	.227		7.422	.000	1.228	2.137
Age	-.061	.092	-.061	-.658	.513	-.246	.124
Setting	.181	.101	.176	1.795	.078	-.021	.383
Marital status	-.202	.131	-.138	-1.541	.129	-.464	.061
Education level	.225	.039	.645	5.836	.000	.148	.302
Monthly income	.150	.094	.163	1.601	.115	-.038	.339

R-square=0.67 Model ANOVA F=24.78 p<0.05

Table 8: Best fitting multiple linear regression model for attitude score

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	.764	.306		2.499	.016	.151	1.376
Age	-.053	.109	-.058	-.487	.629	-.273	.166
Setting	.060	.118	.063	.506	.615	-.177	.296
Marital status	-.160	.152	-.118	-1.054	.297	-.464	.144
Education level	.183	.050	.568	3.661	.001	.083	.284
Monthly income	-.046	.112	-.054	-.408	.685	-.271	.179
Knowledge score	.279	.159	.227	1.752	.086	-.040	.599

R-square=0.54 Model ANOVA F=10.26 p<0.05

Table 9: Best fitting multiple linear regression model for Braden scale score

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	2.150	.437		4.916	.000	1.271	3.029
Age of elderly	-.364	.115	-.362	-3.155	.003	-.596	-.132
Elderly gender	-.089	.089	-.089	-.994	.325	-.268	.091
Length stay in bed	-.244	.060	-.393	-4.084	.000	-.364	-.124
Intestine movement [motility]	.107	.093	.114	1.147	.257	-.080	.294
Urination condition	-.059	.054	-.113	-1.088	.282	-.169	.050
With whom live	-.127	.172	-.064	-.736	.465	-.473	.220
Total no. of disease	-.081	.055	-.142	-1.487	.143	-.191	.029
BMI2	.153	.079	.174	1.933	.059	-.006	.312
Care giver Knowledge	.124	.142	.093	.874	.387	-.161	.408

R-square=0.67 Model ANOVA F=9.98 p<0.05

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