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Effectiveness of an Instructional Module on Knowledge and Practice Regarding Self-Monitoring of Vital Parameters among Adults

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ABSTRACT
Vital signs are an important indicator of a living thing's fundamental physiological processes. They are referred to as "vital" because determining their value and importance is a crucial step in any clinical evaluation. Traditionally, the vital signs consist of temperature, pulse rate, blood pressure, and respiratory rate. The study objectives were to assess the pre-test level of knowledge and practice regarding self-monitoring of vital parameters among adults, evaluate the effectiveness of instructional module on knowledge and practice of adults regarding self-monitoring of vital parameters, correlate the pre-test knowledge and practice on self-monitoring of vital parameters among adults, find out the association between pre-test level of knowledge and practice on self-monitoring of vital parameters among adults with selected socio-demographic variables and clinical variables.: A quantitative research approach and a quasi-experimental design (one group pre-test post test design) was used in the study. 60 adults were selected by using convenience sampling technique. Structured knowledge questionnaire and practice check list were used for data collection, descriptive and inferential statistics with the help of SPSS version 25 were used for analysis. The results of the study showed that in the pre-test 22 (36.7%) of the adults had poor knowledge scores, whereas 38 (63.3%) had average knowledge scores and in the post-test, knowledge scores of the adults were 39 (65%) in the good category and 21 (35%) in the excellent category. In the pre-test the practice scores of the adults were 4 (6.7%) in the poor category, 52 (56.7%) in the average category, and 3 (6.7%) in the good category and in the post test practice scores 34 (56.7%) adults in good category and 26 (43.3%) adults in excellent category. As per the paired t test, the calculated t value of knowledge was 23.818 which was more than the tabulated value and the calculated t value of practice was 38.318 which was more than tabulated value. The study findings concluded that, the instructional module was effective in improving the levels of knowledge and practice regarding self-monitoring of vital parameters among adults residing in Goraj, Waghodia, Vadodara.
Keywords: *Vital Parameters, Self-monitoring, Instructional module, Knowledge, Practice*

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INTRODUCTION

A living thing's vital signals serve as a key indicator of it's basic physiological functions. The reason they are called "vital" is because figuring out their worth and significance is an essential first step in any therapeutic evaluation. An assessment of the patient's vital signs constitutes the initial set of clinical examinations. Temperature, pulse rate, blood pressure, and respiration rate are the traditional vital signs [1].They help to establish a human being's overall physical health and offer a nearly complete picture of their body's critical functions [2]. Body temperature is a complicated, nonlinear variable that is influenced by numerous internal and external factors. Blood pressure is the force the heart is applying to the beating blood as it pushes against the arterial walls [3]. Breathing is the act of respiration [4]. Respiration is one of the most remarkable physiological factors._The perceptible contraction of blood flow that can be felt at different body parts is called the pulse. [3]

Expected values of vital parameters, understand individual's values, interconnect results properly, and begin interventions as required.

- Temperature Range: 36° to 38° C (96.8° to 100.4° F), Average oral/tympanic: 37° C (98.6° F), Average axillary: 36.5° C (97.7° F).
- Respirations: 12 to 24 breaths/min.
- Blood Pressure: Average: <120/<80 mm Hg.
- Pulse Average: 60 to 100 beats per minute [3]

Regular vital sign monitoring is a crucial care strategy that attempts to help people identify aberrant physiological parameters in themselves early on. Four vital parameters: body temperature (BT), heart rate (HR), respiration rate (RR), and blood pressure (BP) [1].
Vital sign measurement yields information on a person's typical state of health (baseline data). Vital signs can fluctuate, sometimes going outside of what is considered normal, depending on a variety of factors, including the environment's temperature, the person's level of physical activity, and the impacts of disease [3].
Therefore, the purpose to present study was to examine the effectiveness of instructional module on self-monitoring of vital parameters and make people aware about normal and abnormal vital parameters.

MATERIAL AND METHODS

A quantitative research approach was considered appropriate for the study. A quasi-experimental design (one group pre-test posttest design) was used to assess the effectiveness of the instructional module on knowledge and practice regarding self-monitoring of vital parameters among adults, 60 adults were selected by using convenience sampling technique; a type of non-probability sampling. Structured knowledge questionnaire and practice checklist were formulated on the basis of the objectives of the study, as it were considered to be the most appropriate instrument to elicit responses from the participants regarding self-monitoring of vital parameters. The validity of the tool was obtained from eight experts and reliability of tool was calculated by Karl Pearson's test retests method, reliability of structured knowledge questionnaire was r = 0.791 and reliability of practice checklist was r = 0.787. Descriptive and inferential statistics with the help of SPSS version 25 were used for analysis.

RESULTS

Descriptive and inferential statistics were used for analysis. Result of the study were divided into following sections.
SECTION A: Pre-test level of knowledge and practice regarding self-monitoring of vital parameters among adults.
SECTION B: Effectiveness of instructional module on knowledge and practice of adults regarding self-monitoring of vital parameters.
SECTION C: Correlation between the pre-test levels of knowledge and practice on self-monitoring of vital parameters among adults.
SECTION D: Association between pre-test level of knowledge and practice on self-monitoring of vital parameters among adults with selected socio-demographic and clinical variables.

SECTION A: Pre-test level of knowledge regarding self-monitoring of vital parameters among adults.

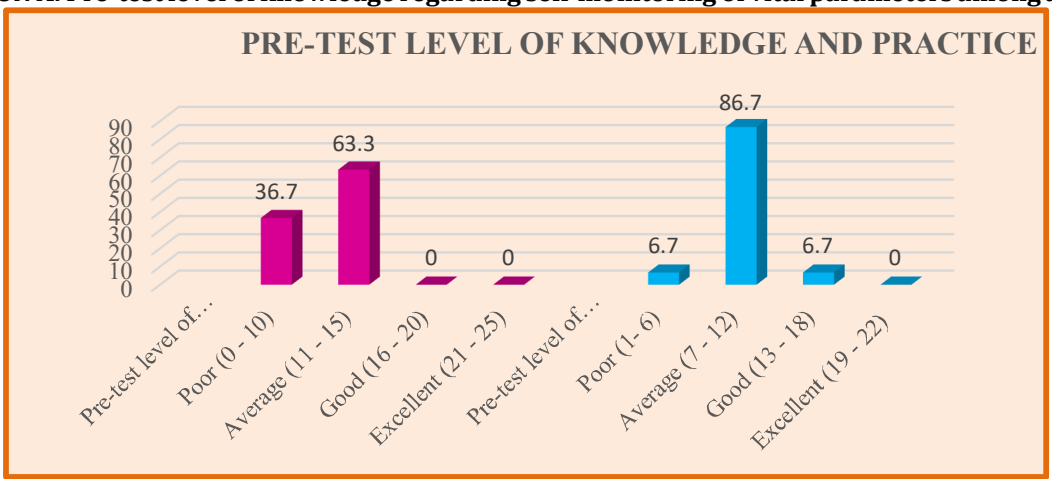

Fig 1: Pre-test level of knowledge and practice regarding self-monitoring of vital parameters among experimental group n=60

Fig. 1 depicts that, in pre-test knowledge scores there were 22 (36.7 %) adults in poor category, 38 (63.3%) adults in average category and none of the adults were in good and excellent category. In pre-test practice score there were 4 (6.7 %) adults in poor category, 52 (86.7 %) adults in average category and 3 (6.7 %) adults in good category and none of the adult were in excellent category.

SECTION B: Effectiveness of instructional module on knowledge and practice of adults regarding self-monitoring of vital parameters.

Table 1: Mean Score, Standard Deviation and T Value of Knowledge Score About Self-Monitoring Of Vital Parameters. (n = 60)

KNOWLEDGE SCORE	MEAN SCORE	STANDARAD DEVIATION (SD)	DEGREE OF FREEDOM (df)	CALCU-LATED "t" VALUE	"t" VALUE TABULATED	p VALUE
Pre-test	11.37	1.974	59	23.818	1.6766	000
Post test	19.57	1.960				

Data presented in Table – 1 shows the comparison of the pre-test and post test knowledge scores of adults. As per the paired t test, the calculated t value at 59 degree of freedom was 23.818 and tabulated t value was 1.98 at < 0.05 level of significance. Hence the calculated t value is greater than the tabulated value. Hence it was concluded that the instructional module on self-monitoring of vital parameters was effective in improving the level of knowledge of adults.

Table 2: Mean Score, Standard Deviation And T Value Of Practice Score About Self-Monitoring Of Vital Parameters.(n=60)

PRACTIC E SCORE	MEAN SCORE	STANDARAD DEVIATION (SD)	DEGREE OF FREEDOM (df)	CALCU-LATED "t" VALUE	"t" VALUE TABULATE D	p VALUE
Pre-test	9.02	2.063	59	38.318	1.6766	000
Post test	18.28	1.606				

Data presented in Table – 2 compares the pre-test and post-test practice scores of adults. The paired t test revealed that the calculated t value at 59 degree of freedom was 38.318 and tabulated t value was 1.6766 at < 0.05 level of significance. Hence the calculated t value is greater than the tabulated value. Hence, it was inferred that the instructional module on self-monitoring of vital parameters was effective in increasing the level of practice of adults.

SECTION C: Correlate the pre-test knowledge and practice on self-monitoring of vital parameters among adults.

Table 3: Correlation of the Pre-Test Knowledge and Practice on Self-Monitoring of Vital Parameters among Adults. n = 60

VARIABLE	MEAN	STANDARD DEVIATION	KARL PEARSON'S CORELLATION COEFFICEINT (r)
KNOWLEDGE	11.37	1.974	
PRACTICE	9.02	2.063	0.073

Table – 3 presents the mean of the knowledge score as 11.37 ± 1.974 and the mean of the practice score was 9.02 ± 2.063. The value of "r" was 0.073 which depicts that there was a weak positive correlation between pre-test knowledge and practice regarding self-monitoring of vital parameters.

SECTION D: Association between pre-test level of knowledge and practice on self-monitoring of vital parameters among adults with selected socio-demographic and clinical variables.

There was no significant association with sociodemographic variables such as age, gender, education, occupation, residential area, types of family, religion, socio economic status, previous knowledge regarding vital parameters, source of information, diet, frequency of taking non – vegetarian food, stress relaxation technique, physical activity, temperature checking, blood pressure checking, heart rate checking and respiration checking. Also, no significant association was found with clinical variables such as comorbid conditions, recent history of hospitalization, family history, communicable disease and taking regular medicines with the knowledge scores.

Table 4: Association between Pre-Test Levels of Practice on Self-Monitoring of Vital Parameters among Adults with Selected Socio-Demographic Variables. n = 60

DEMOGRAPHIC VARIABLE	POOR F	AVERAGE F	GOOD F	EXCELLENT F	TOTAL	$\chi 2$ VALUE	DF VALUE	P VALUE
Age								
30 – 35	1	13	2	0	16	6.281	6	0.393 NS
36 – 41	0	10	0	0	10			
42 – 51	0	12	0	0	12			
52 – 60	3	17	2	0	22			
Gender								
Male	1	26	3	0	30	2.000	2	0.368 NS
Female	3	26	3	0	30			
Other	0	0	0	0	0			
Education								
Illiterate	0	2	0	0	2	19.238	8	0.14 NS
Below 10th	1	15	0	0	16			
10th Std.	2	11	0	0	13			
12th Std.	1	16	0	0	17			
Graduate	0	8	4	0	12			
Post graduate	0	0	0	0	0			
Occupation								
Labourer	0	1	0	0	1	7.830	8	0.450 NS
Private worker	1	23	4	0	28			
Farmer	0	9	0	0	9			
Government worker	0	1	0	0	1			
Unemployed	3	18	0	0	21			
Residential area								
Urban	0	0	0	0	0	-	-	-
Rural	4	52	4	0	60			
Types of family								
Joint family	3	33	2	0	38	0.541	2	0.763 NS
Nuclear family	1	19	2	0	22			
Religion								
Hindu	4	48	4	0	56	0.659	2	0.719 NS
Muslim	4	4	0	0	4			
Christian	0	0	0	0	0			
Other	0	0	0	0	0			
Socio economic status								
Poor class	0	0	0	0	0	-	-	-
Middle class	4	51	4	0	60			
Upper class	0	0	0	0	0			
Previous knowledge regarding vital parameters								
Yes	1	9	4	0	14	14.204	2	0.001 S
No	3	43	0	0	46			
Source of information								

Not applicable	3	43	0	0	46	28.257	8	0.001 S
Media	0	5	3	0	8			
Books	0	2	0	0	2			
Relatives	1	1	0	0	2			
Friends	0	2	0	0	2			
Other	0	0	0	0	0			
Diet								
Vegetarian	2	27	2	0	31	0.010	2	0.995 NS
Non – vegetarian	2	25	0	0	29			
Frequency of taking non – vegetarian food								
Not applicable	2	27	2	0	31	1.829	6	0.935 NS
Usually	0	5	0	0	5			
Occasionally	0	3	0	0	3			
Rarely	2	17	2	0	21			
Stress relaxation technique								
Yes	0	0	0	0	0	-	-	-
No	22	38	0	0	60			
Physical activity								
Daily	0	8	0	0	8	10.842	6	0.093 NS
3 – 4 times/ week	0	23	4	0	27			
Once a week	3	17	0	0	20			
No physical activity	1	4	0	0	5			
Check temperature								
Yes	1	12	3	0	16	5.127	2	0.077 NS
No	3	40	1	0	44			
Check blood pressure								
Yes	0	3	1	0	4	2.514	2	0.285 NS
No	4	49	3	0	56			
Check heart rate								
Yes	0	7	3	0	10	10.985	2	0.004 S
No	4	45	1	0	50			
Check respiration								
Yes	0	0	0	0	0	-	-	-
No	4	52	4	0	60			

Table – 4 shows that, there was significant association between socio-demographic variables like previous knowledge regarding vital parameters, source of information and checking heart rate. There was no significant association with clinical variables such as comorbid conditions, recent history of hospitalization, family history, communicable disease and regular medicine.

DISCUSSION

The present study revealed that the pre – test knowledge scores of adults were 36.7 % in the poor category and 63.3 % in the average category. The mean score of pre-test knowledge was 11.37 with SD 1.97 and the mean score of post- test knowledge scores was 19.57 with SD 1.960.

A similar study conducted by Ambooj Thakur, Niraj K Sah an evaluation of paramedical trainees' knowledge of vital signs63.3% of people are aware that temperatures are measured using glass mercury thermometers. According to 222 respondents, medical professionals need to be knowledgeable about vital signs. Coffee consumption and smoking have an impact 30 minutes before vital sign measurements, according to 92.5% of respondents.197 out of 226 respondents believe that patients need to relax before having their vital signs measured [9].

The current study revealed that as per the paired t test, the calculated' value was 23.818 and tabulated value was 1.98 at 0.05 level of significance. Hence it was concluded that the instructional module on self-monitoring of vital parameters was effective in improving the knowledge of adults.

A quasi-experimental study conducted by Dr. Samia M. Abd El-mouty & Dr. Samar Elhoseini Abd-Elraouf in 2016 on improving the knowledge and attitude students toward vital signs in Mansoura university. Following the execution of training sessions, students' knowledge, proficiency, and attitude about vital signs significantly improved. (P =0.000) [10].

There was significant association between socio-demographic variable like previous knowledge regarding vital parameters, source of information and checking heart rate. There was no significant association

between some variable such as Comorbid conditions, Recent history of hospitalization, Family history, Communicable Disease, Regular medicine.
A cross-sectional study was conducted by Kennedy Dodam Konlan, Charles Junior Afam-Adjei, et. Al in 2020 on practice and sociodemographic factors manipulating self-monitoring of blood pressure in Ghanaians with high blood pressure, Alertness of self-monitoring of blood pressure was associated with increased practice of self-monitoring of blood pressure [11].

CONCLUSION

The study concluded that, the instructional module was effective in improving the levels of knowledge and practice regarding self-monitoring of vital parameters among adults residing in Goraj, Waghodia. Hence it is recommended that the health care workers may use the instructional module to empower the community people regarding the vitals monitoring on a routine basis which will assist in primary prevention of various disease conditions and to take appropriate treatment at an early stage.

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