PROMOTING BONE HEALTH THROUGH UTILIZATION OF A NURSE LED PROTOCOL

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This project is in partial fulfillment of the degree requirements for the Doctor of Nursing Practice at Touro University Nevada

ABSTRACT

Osteoporosis is a preventable chronic condition defined as low bone density with bone micro-architecture deterioration resulting in an increased risk of fragility fractures, mortality, morbidity, and financial burden. Weight-bearing exercises and osteoprotective behavior modification can improve bone mineral density and reduce fragility fractures but deficits in the identification of at-risk patients have hindered efforts to intervene.

INTRODUCTION

Osteoporosis: Most prevalent bone disease among older adults (Sabin & Sarter, 2014).
It is preventable (through modifiable risk factors) (Kling, Clarke, & Sandhu, 2014).
Inadequate screening = late detection = increased morbidity.
Osteoporosis results from bone density loss and causes fragility fractures (Kling, Clarke, & Sandhu, 2014).
It is a silent disease until a fragility fracture occurs-50% risk thereafter for subsequent fracture (French & Emanuele, 2019).
Prevalence in postmenopausal women due to the retraction of estrogen (1 in every 2 women) (Daly et al., 2019)

MATERIALS & METHODS

Facts on Osteoporosis Quiz (FOOQ)
Novel four question Likert-like survey
Novel EHR osteoporosis tool
Educational materials (PPT, etc.)
FOOQ: Pre- and Post- survey results: Paired sample doubled-tailed t-test (p=0.05)
Likert-like survey: Paired sample doubled-tailed t-test (p=0.05)
DEXA ordering: Fischer's exact test of independence (p=0.05)
Data analyzed using SPSS version 25, StatPlus Excel plug-in

RESULTS

- The nurses participating in the project significantly improved on the FOOQ
- The opinions of the nurses involved in the project significantly improved
- DEXA ordering significantly increased for female patients > 64 years old
- DEXA scan ordering increased for female patients 50-64 years of age but the increase was not statistically significant.

FOOQ Scoring

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pre-Implementation Survey	13.96	25	2.761	.552
	Post-Implementation Survey	18.80	25	1.414	.283

	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1 Pre-survey Post-survey	- 4.840	3.064	.613	-6.105	-3.575	-7.897	24	.000

The data above indicate that there was an increase in total score between the pre-survey as 13.96 (mean) and post-survey (18.80 (mean).

DEXA Ordering

DEXA Columns Pre and Post-Implementation Women >65

DEXA count for Women > 65	Pre-Implementation	Post-Implementation	Total
No DEXA	797	679	1476
Yes DEXA	14268	14386	28654
Total	15065	15065	30130

DEXA Columns Pre and Post-Implementation Women 50-64

DEXA count for Women 50-64	Pre-Implementation	Post-Implementation	Total
No DEXA	11981	11904	23885
Yes DEXA	2895	2979	5874
Total	14876	14883	29759

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Challenges

COVID 19 was a challenge-patient's were reluctant to undergo non-emergency testing due to the shelter at home recommendations.
Increased volume of Covid-19 related calls and e-mails inundated the department, straining all resources .

DISCUSSION

Conclusions

Strategies for osteoporosis prevention are both cost-effective, increase efficacy, and promote healthy bones (identification and modifications of modifiable osteoporosis risk factors).

Limitations

Use of a non-random sampling plan-only the Telehealth nurses at a single location were able to participate in the project increased the risk of selection bias

Future Directions

Future research questions: Do recommendations made by Telehealth nurses translate into healthy bones?

REFERENCES

Appelbaum, S., Habashy, S., Malo, J., & Shafiq, H. (2012). Back to the future: Revisiting Kotter's 1996 change model. *Journal of Management Development, 31*(8), 764-782.

Brander, C. (2017, Nov). DEXA dilemmas: Clarifying recommendations for osteoporosis screening. *The Women's Health Activist, 42*, 4-5,9. Retrieved from https://search.proquest.com/docview/1967046321?accountid=28843

Daly, R. M., Dalla Via, J., Duckham, R. L., Fraser, S. F., & Helge, E. W. (2019). Exercise for the prevention of osteoporosis in postmenopausal women: An evidence-based guide to the optimal prescription. *Brazilian Journal of Physical Therapy*, *23*(2), 170-180. http://dx.doi.org/10.1016/j.bjpt.2018.11.011

Elias, B. L., Polancich, S., Jones, C., & Colvin, S. (2015). Evolving the PICOT method for the digital age: The PICOT-D. *Journal of Nursing Education*, *54*(10), 594-599. doi.org/http://dx.doi.org/10.3928/01484834-20150916-09

Fischer, C. R., Vasudeva, E., Beaubrun, B., Messer, Z., Cazzullino, A., & Lehman, R. (2018). Osteoporosis knowledge among spine surgery patients. *International journal of spine surgery*, *12*(6), 689–694. https://doi.org/10.14444/5086

Fischer, C. R., Vasudeva, E., Beaubrun, B., Messer, Z., Cazzullino, A., & Lehman, R. (2018). Osteoporosis knowledge among spine surgery patients. *International journal of spine surgery*, *12*(6), 689–694. https://doi.org/10.14444/5086

French, K. D., & Emanuele, D. (2019). Osteoporosis: Increasing screening and treatment for postmenopausal women. *The Journal for Nurse Practitioners*, *15*(5), 347-350. http://dx.doi.org/10.1016/j.nurpra.2019.02.01

Google Images. (2020) [Image]

Hughes, R.G. (2008). Tools and strategies for quality improvement and patient safety. In patient safety and quality: An evidence-based handbook for Nurses, Hughes RG, editor. Rockville, MD: Agency for Healthcare Research and Quality (US). Retrieved from www.ncbi.nlm.nih.gov/books/NBK2682/

IOF. (2015a). Osteoporosis facts and statistics. Retrieved November 2019, from www.iofbonehealth.org/facts-and-statistics/calcium-studies-map

Kalkim, A., & Daghan, S. (2017). Theory-based osteoporosis prevention education and counseling program for women: A randomized controlled trial. *Asian Nursing Research*, *11*(2), 119-127. http://dx.doi.org/http://dx.doi.org/10.1016/j.anr.2017.05.010

ACKNOWLEDGEMENTS

I remain eternally grateful for the awareness of God's grace, his unconditional love, and the countless miracles in my life.

I am eternally grateful for the support and guidance of my DNP Project Chair/Instructor Dr. Rhone D'Errico who has provided immeasurable support and scholarly guidance through this project and his authentic care for my growth and success.

I also want to acknowledge my academic advisor Dr. Terry Bartmus for your guidance and support.