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Relationship Between Quality of Life and Compliance with the Management of Gouty Arthritis in Lanao, Philippines

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Abstract:-

➢ ***Background of the Study:***

It is estimated that over 1.6 million Filipinos suffer from gout (PRA 2015), due to poor food and lifestyle choices and as a result, the prevalence of gout has been rising over time (Lazo 2015). This study seeks to determine the extent of compliance with gout management practices and evaluate their impact on patients' Quality of Life(QoL).

The hypothesis postulates a significant relationship exists between these variables. This research holds significance to patients, caregivers, student nurses, and nursing practitioners by providing insights that can improve management strategies and enhance the QoL for those afflicted with Gouty Arthritis(GA).

➢ ***Purpose:***

This study aimed to determine the relationship between the quality of life and compliance with the management of gouty arthritis in individuals diagnosed with the condition. This research sought to address the following questions: To what extent do individuals comply with the management protocols for gouty arthritis? What is the quality of life of those living with gouty arthritis? Is there a significant relationship between the quality of life and adherence to management strategies for gouty arthritis?

➢ ***Materials and Methods:***

The researchers formally wrote to each of the Punong barangay in Iligan City, Marawi City and Bacolod Lanao Del Norte before starting the survey, requesting authorization to conduct study and distribute questionnaires to specific residents in their barangay.Using a quantitative, correlational research design, data were collected from 120 participants through validated Likert scale questionnaires.

➢ ***Results:***

The findings indicate that while dietary compliance is adhered "rarely", activity management and pharmacological and non-pharmacological management are "often" adhered to. Participants generally indicate a high QoL , with good core health days, manageable personal care needs, and a positive mental health outlook. A significant positive relationship exists between QoL and compliance with GA management.

➢ ***Conclusion:***

There is a general significant positive correlation between a quality of life and compliance with the management of gouty arthritis. It shows that having high adherence with the management of gouty arthritis results in a high quality of life among individuals with the condition. Moreover, the study reveals the need for targeted interventions and patient education to optimize GA management and enhance QoL.

Keywords:- *Gouty Arthritis, Relationship, Compliance, Diet Management, Activity Management, Pharmacological And Nonpharmacological Management, Quality of Life.*

I. INTRODUCTION

This study aimed to determine the relationship between the quality of life and the compliance with the management of gouty arthritis of those people who have the disease.

Approximately 1.6 million Filipinos suffer from gout (PRA 2015) due to poor food and lifestyle choices. As a result, the prevalence of gout has been rising over time (Lazo 2015).

Gouty arthritis (GA) is a uric acid-related metabolic disease that causes hyperuricemia.These crystals cause a strong local inflammatory response and activate parts of the innate immune system (Hoss et al. 2023). Clinically proven, gout is the most common inflammatory arthritis in men who are aged 20 and above and in post-menopausal women. Even though there is a viable treatment for gout, it is frequently mismanaged (Centeno-Calixto 2019). In terms of complications, gouty arthritis causes chronic long-term pain. Pain affects physical activities, joint mobility, stress, anxiety, depression, and quality of life in afflicted patients (Kurniasari 2022). Individuals are usually diagnosed with gout when they have an attack of an excruciating arthritis, which can cause struggles in sleeping, ambulating and working (Murdoch et al. 2021). Interestingly, Asian ethnicity was linked to a higher chance of receiving a gout diagnosis than white ethnicity (Singh and Gaffo 2020).

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Review of literature shows that the management of gouty arthritis significantly affects patients' quality of life due to the severe pain and mobility restrictions associated with the disease. As such, physically active gout patients had significantly less flares every year, decreased C-reactive protein levels, and lower pain scores relative to physically inactive patients (Jablonski et al. 2020). The pain associated with the condition hampers the ability to perform everyday tasks and leads to irritability and mood swings, which in turn strain family relationships (Díaz-Torné et al. 2023). Among non-pharmacological therapies, applying cold compresses are particularly appropriate for joints with signs of inflammation, such as redness and swelling. Ice packs and ice water are widely used in the management of pain and injuries (Novrika & Akhriansyah 2020).

Although studies on the management of gouty arthritis and quality of life are enormously advanced, the relationship between adherence to treatment plans and the outcomes in QoL remain relatively underexplored. Research targeted at bridging this knowledge gap will progress further in the understanding of gout as a chronic disease but help improve health outcomes and quality of life for those affected by the condition. This research gap opens opportunities for making huge-impact future studies in public health, especially for the affected individuals of gouty arthritis and the general health community associated with their care. Hence, studying the benefits of adherence with the management of gout arthritis and its relationship with quality of life can help to form strategies that people with gouty arthritis can modify and apply to alleviate the pain, discomfort and other symptoms of their GA for them to have a high quality of life. Therefore, this study will focus on determining the relationship between quality of life and compliance with the management of gouty arthritis.

II. METHODS

A. Research design:

This study used correlational study quantitative research design. The researchers conducted data about the correlation between the compliance with the management of gout arthritis on affected individuals' quality of life. This design allowed researchers to collect the data about the extent of compliance with the management of GA and the quality of life.

B. Sampling Plan:

This study comprised a deliberate selection of 120 respondents. The target are adults and older adults in Iligan City, Marawi City and Bacolod Lanao Del Norte Philippines.Specifically thirtyfive from Iligan City, sixty residents from Bacolod Lanao Del Norte, and twenty five residents from Marawi City. Purposive sampling is employed to deliberately select participants based on specific study's inclusion criteria which are people who have gout arthritis aged eighteen and above without consideration of gender.

C. Data Measurement and Collection:

The method of measuring variables and collecting study data involved the use of a validated researcher-produced and an adapted Likert scale 2 questionnaire targeting compliance with gouty arthritis management and health-related quality of life.

D. Study Procedures:

Study procedures included obtaining formal permission from local barangay officials in Iligan City, Marawi City, and Bacolod Lanao Del Norte, and ensuring informed consent from all participants to protect human rights.

E. Data Analysis Method:

Data analysis methods encompassed statistical evaluations using SPSS version 25. The mean and standard deviation were calculated to assess compliance and quality of life. The Spearman rho correlation method was applied to determine the correlation between these variables.

III. RESULTS

A. Compliance on Diet Management

Table 1 displays the compliance with diet management for gouty arthritis among the 120 respondents. The results reveal that the fourth question, with a mean value of 2.74 (SD = 1.0), indicates that respondents "often" avoid alcoholic beverages. This is followed by the first question, showing a mean value of 2.64 (SD = .83), signifying that respondents "often" drink 8-11 glasses of water daily. The third question, with a mean value of 2.54 (SD = .81), suggests that respondents "often" limit beverages sweetened with fruit sugar.In contrast, the sixth question, with a mean value of 2.38 (SD = .94), demonstrates that respondents "rarely" avoid eating purine-rich foods, a trend that is similarly reflected in the fifth question, which has a mean value of 2.34 (SD = .94). Lastly, the second question, with a mean value of 2.09 (SD = .87), indicates that respondents "rarely" drink lemon water. Overall, an average mean score of 2.47 (SD = .64) highlights that many participants "rarely" adhere to certain dietary practices to manage their gouty arthritis symptoms.

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Table 1: Descriptive Statistics of Compliance on Diet Management of Gouty Arthritis

Questions	Mean ± SD	Description
I drink plenty of water (8-11 glasses) everyday.	2.64 ± .83	Often
I drink one squeezed lemon (30ml) in one glass of water (240ml) everyday.	2.09 ± .87	Rarely
I limit drinking beverages sweetened with fruit sugar (fructose).	2.54 ± .81	Often
I avoid drinking alcoholic beverages.	2.74 ± 1.0	Often
I avoid eating purine-rich foods such as organ meats, sardines, salmon, gravy, herring, liver and meat soups.	2.34 ± .94	Rarely
I eat low-fat dairy products like milk, cheese, yogurt, or cottage.	2.38 ± .94	Rarely
Overall	**2.47 ± .64**	**Rarely**

Note: 1.O-1.74=Never, 1.75-2.49=Rarely, 2.50-3.24=Often, 3.25-4.0=Always

B. Compliance on Activity Management

Table 2 presents the compliance with the second management among the 120 research participants, which is activity management strategy for gout arthritis. The results reveal that the fourth question has the highest mean value of 2.93 (SD = 1.09), indicating that respondents "often" avoid any form of cigarette smoking. The first question follows, with a mean value of 2.79 (SD = .96), showing that respondents "often" perform exercises like walking, bicycling, swimming, and other activities to lower the pain and inflammation of gout. The third question, with a mean score of 2.59 (SD = 1.02), suggests that maintaining a desired body weight is "often" practiced. On the contrary, the second question, with a mean value of 2.48 (SD = .98), indicates that respondents "rarely" stretch their affected joints to regain flexibility. Overall, the activity management mean score is 2.55 (SD = .69), indicating that these individuals generally adhere to the recommended activity management strategies "often."

Table 2: Descriptive Statistics of Compliance on Activity Management of Gouty Arthritis

Questions	Mean ± SD	Description
I do exercises like walking, bicycling, swimming and other exercises to lower the pain and inflammation of my Gout.	2.79 ± .96	Often
I do stretching of my affected joints to regain flexibility of my joints to ensure ease with movement.	2.48 ± .98	Rarely
I keep my body at a desired weight	2.59 ± 1.02	Often
I avoid any form of cigarette smoking.	2.93 ± 1.09	Often
Overall	2.55 ± .69	Often

Note: 1.O-1.74=Never, 1.75-2.49=Rarely, 2.50-3.24=Often, 3.25-4.0=Always

C. Compliance on Pharmacological and Nonpharmacological Management of Gouty Arthritis

Table 3 shows the pharmacologic and nonpharmacologic management of gouty arthritis among the 120 participants. The highest level of compliance is in the first question, with mean value is 2.83 (SD = 1.11), indicating that participants "often" take medication as prescribed by the doctor. The second highest compliance is observed in the sixth research question and has a mean of 2.73 (SD = 0.90), suggesting that participants "often" elevate their affected joints with two pillows under them. The next level of compliance is in the fifth research question, which has a mean value of 2.47 (SD = 0.97) showing that respondents "rarely" reduce their stress as much as possible. This is followed closely by the third research question, with a mean value of 2.44 (SD = 1.15) indicating that participants "rarely" apply ointment and other creams to their affected joints. The compliance level is slightly lower in the second research question, with a mean value of 2.16 (SD = 1.06) suggesting that participants "rarely" take over-the-counter medication. The lowest level of compliance is seen in the fourth research question, with a mean value of 2.11 (SD = 1.03) indicating that participants "rarely" apply a cold compress to their affected joints. The overall result shows that respondents "rarely" adhere to prescribed medications and nonpharmacological management for their gouty arthritis, with a mean score of 2.49 (SD = 0.79).

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Table 3: Descriptive Statistics of Compliance on Pharmacologic and Nonpharmacologic Management of Gouty Arthritis

Questions	Mean ± SD	Description
I am taking medications as prescribed by the Doctor such as Colchicine, Allopurinol, Febuxostat, Probenecid, Indomethacin and others.	2.83 ± 1.11	Often
I am taking over-the-counter medication such as Ibuprofen and Naproxen and other OTC drugs to lower the symptoms of my gout like the pain and inflammation.	2.16 ± 1.06	Rarely
I am applying Ointment, Diclofenac (Voltaren), Gout Buster and other cream to my affected joints to lower the inflammation, swelling, stiffness, and joint pain.	2.44 ± 1.15	Rarely
I am applying cold compress to my affected joints.	2.11 ± 1.03	Rarely
I am reducing my stress as much as possible by doing Meditation, Walking, Talking and Connecting to Others, Deep Breathing Exercise, Massage, Yoga, Dancing, Do something Tactile and others.	2.47 ± .97	Rarely
I am elevating the affected joints by putting 1-2 pillows under it.	2.73 ± .90	Often
Overall	**2.49 ± .79**	**Rarely**

Note: 1.O-1.74=Never, 1.75-2.49=Rarely, 2.50-3.24=Often, 3.25-4.0=Always

D. Core Health Days

Table 4 presents the respondents' positive perceptions of their core healthy days. The highest mean score of 2.96 (SD = .72) pertains to mental health, indicating that respondents rated their mental health, including stress, depression, and emotional problems, as "very good." The usual activities, such as self-care and recreation over the past month, received a mean score of 2.68 (SD = .87), also rated as "very good." This is followed by general health with a mean score of 2.63 (SD = .86), reflecting a "very good" perception. Physical health, including physical illness and injury over the past month, was rated "fair," with a mean score of 2.43 (SD = .80). The lowest mean score of 2.28 (SD = .80) was given to the quality of life in the past month due to gout, indicating a "fair" rating. Overall, the mean score for the respondents' perceptions of their core healthy days is 2.59 (SD = .63), which indicates an overall perception of their health as "very good."

Table 4: Descriptive Statistics of Respondents' Core Healthy Days

Questions	Mean ± SD	Description
Would you say that in general your health is:	2.63 ± .86	Very Good
How was your physical health in the past month including physical illness and injury.	2.43 ± .80	Fair
How was your mental health in the past one month including stress, depression, and problems with emotions.	2.96 ± .72	Very Good
How would you rate your usual activities, such as self-care, or recreation during the past one month?	2.68 ± .87	Very Good
Because of your gout, how would you rate your quality of life in the past month?	2.28 ± .80	Fair
Overall	**2.59 ± .63**	**Very Good**

Note: 1.O-1.74=Poor, 1.75-2.49=Fair, 2.50-3.24=Very Good, 3.25-4.0=Excellence

E. Activity Limitations

Table 5 presents the descriptive statistics of respondents' activity limitations due to gout. The highest mean score of 2.70 (SD = .83) relates to personal care needs, such as eating, bathing, dressing, or getting around the house, indicating a "very good" rating. On the other hand, physical health over the past month was rated "fair" with a mean score of 2.40 (SD = .77). Similarly, overall activities in the past month were also rated "fair," with a mean score of 2.31 (SD = .87). Routine needs, including everyday household chores and necessary business, received the lowest rating, with a mean score of 2.23 (SD = .84), indicating "fair."Overall, the mean score for activity limitations due to gout was 2.41 (SD = .70).

Table 5: Descriptive Statistics of Respondents' Activity Limitations

Questions	Mean ± SD	Description
Because of your gout, how do you rate your personal care needs, such as eating, bathing, dressing, or getting around the house?	2.70 ± .83	Very Good
Because of your gout, how do you rate your routine needs, such as everyday household chores, doing necessary business, shopping, or getting around for other purposes?	2.23 ± .84	Fair
Because of your gout, how would you rate your overall activities in the past month?	2.31 ± .87	Fair
Because of your gout, how would you rate your physical health in the past month?	2.40 ± .77	Fair
Overall	**2.41 ± .70**	**Fair**

Note: 1.O-1.74=Poor, 1.75-2.49=Fair, 2.50-3.24=Very Good, 3.25-4.0=Excellence

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F. Mental Health

Table 6 Table 6 shows the mental health state of 120 research participants in the past month. The highest mean score of 2.93 (SD = .74) pertains to respondents' mental stress coping, indicating a "very good" rating. This is closely followed by their mental health, which had a mean value of 2.92 (SD = .71), also rated as "very good. " Emotional stress management was rated "very good," with a mean score of 2.89 (SD = .74). Respondents' resting or sleeping patterns were similarly rated "very good," with a mean score of 2.59 (SD = .77). Overall, the mean score for respondents' mental health state in the past month was 2.83 (SD = .56).

Table 6: Descriptive Statistics of Respondents' Mental Health

Questions	Mean ± SD	Description
During the past month, how would you rate your mental stress coping?	2.93 ± .74	Very Good
During the past month, how would you rate your resting or sleeping pattern?	2.59 ± .77	Very Good
During the past month, how would you rate your emotional stress management?	2.89 ± .74	Very Good
Because of your gout, how would you rate your mental health in the past month?	2.92 ± .71	Very Good
Overall	**2.83 ± .56**	**Very Good**

Note: 1.O-1.74=Poor, 1.75-2.49=Fair, 2.50-3.24=Very Good, 3.25-4.0=Excellence

G. Quality of Life and Compliance with the Management of Gouty Arthritis

Table 7 presents the descriptive statistics on the management of gouty arthritis and the quality of life among respondents. The mean score for quality of life is 2.61 (SD = .56), which is categorized as "very good." This is followed by the mean score for compliance with the management of gouty arthritis, which is 2.50 (SD = .57), indicating that respondents engage in management practices "often".

Table 7: Descriptive Statistics of Management of Gouty Arthritis and Quality of Life

Variables	Mean ± SD	Description
Compliance with the Management of Gouty Arthritis	2.50 ± .57	Often
Quality of Life	2.61 ± .56	Very Good

Note: 1.O-1.74=Never, 1.75-2.49=Rarely, 2.50-3.24=Often, 3.25-4.0=Always
Note: 1.O-1.74=Poor, 1.75-2.49=Fair, 2.50-3.24=Very Good, 3.25-4.0=Excellence

H. Correlation of Compliance to the Management of Gouty Arthritis and Quality of Life

Table 8 presents the correlation between compliance with the management of gout arthritis and quality of life, arranged from highest to lowest level of correlation. The results indicate a significant positive correlation between diet management and the quality of core health days ($r = .35$, $p = .001$). This is followed by a significant positive correlation between activity management and the quality of mental health ($r = .33$, $p < .001$). Diet management is also significantly correlated with activity limitations ($r = .31$, $p < .001$).

There is a significant positive correlation between activity management and the core health days ($r = .31$, $p < .001$). Additionally, activity management shows a significant correlation with activity limitations ($r = .25$, $p = .004$). Diet management also has a significant positive correlation with mental health ($r = .26$, $p = .004$).

Pharmacological and nonpharmacological management show a significant positive correlation with mental health ($r = .27$, $p = .002$). There is also a significant positive correlation between pharmacological and nonpharmacological management and core health days ($r = .22$, $p = .015$). However, there is no significant correlation between pharmacological and nonpharmacological management and activity limitations ($r = .15$, $p = .090$).

These results suggest that better compliance with diet and activity management is associated with improvements in various aspects of quality of life, including core health days, activity limitations, and mental health. Pharmacological and nonpharmacological management also contribute positively, though to a lesser extent.

Table 8: Correlation of Compliance to the Management of Gouty Arthritis and Quality of Life

	Core Health Days r(p)	Activity Limitations r(p)	Mental Health r(p)
Diet Management	.35(< .001)	.31(< .001)	.26(.004)
Activity Management	.31(.001)	.25(.004)	.33(< .001)
Pharmacological and Nonpharmacological Management	.22(.015)	.15(.090)	.27(.002)

Note: ** Correlation is significant at the 0.01 level
* Correlation is significant at the 0.05 level

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IV. DISCUSSION

A. Summary of the Findings

Findings of the study show that many participants rarely maintain certain dietary practices that manage the symptoms of their gouty arthritis. Most of the respondents oftenly adhere to the recommended activity management strategies. Respondents rarely adhere to pharmacological and nonpharmacological management for the management of their gouty arthritis. Many of the respondents perceive their core health days as very good. Additionally, results show that many participants perceive their activity limitation as fair.

Moreover, the study indicates that respondents view their mental health as very good. Additionally, the study results indicate that respondents often manage their gout and generally report a very good quality of life despite their condition. Nevertheless, this study shows that there is usually a significant positive relationship between quality of life and compliance with the management of gouty arthritis, while the review of related literature also reveals some significant association in some aspects of the two variables.

B. Implications of Findings

Findings of this study have significant implications for various domains, such domains include public health, community health provider, and future researchers. The study provides valuable perceptions of the compliance with the management of gouty arthritis (GA) and quality of life which can help public health in acquiring management interventions of GA that aim in promoting quality of life. Such compliance includes diet management such as drinking plenty of water, drinking water with squeezed lemon, limiting drinking beverages sweetened with fruit sugar, avoiding alcoholic beverages, avoiding purine-rich foods, and eating low-fat foods. Activity management such as doing exercises, stretching, keeping body in desired weight, and avoiding any form of cigarette. Additionally, pharmacological and nonpharmacological managements such as taking medications as prescribed by doctor and other (Keenan 2017).

Significant implications of this study can be implied to the community health provider by understanding the beneficial cause and result of the persistent adherence with the management of gouty arthritis which thereby improve quality of life. Additionally, community providers could provide health education and assistance about the benefits of adherence with the management of gouty arthritis to those people who suffer from gouty arthritis in order for them to have high quality of life (Russell et al. 2022).

Moreover, the study also lays the groundwork for future researchers in this area. The fact that more of the research participants oftenly comply with the management of their gouty arthritis have very good quality of life which suggests a significant positive correlation between the compliance with the management of gouty arthritis and quality of life.

V. STRENGTHS OF THE STUDY

The study possesses several strengths. One potential strength is that it underwent a content of validity and reliability test because of this the validity and reliability of the research instrument results were ensured. The research instrument "Compliance to the Management with Gouty Arthritis," a multi-item scale, was assessed by having a panel of experts rate the scale items for relevance to the construct, and feedback was provided on the necessity for corrections. This meticulous process ensures that the instrument accurately measures what it intends to, enhancing the construct validity of the study. By incorporating expert feedback, the study mitigates potential biases and ensures that the items on the scale are both comprehensive and relevant. Additionally, content validity is a critical aspect that supports the hypothesis of the study, ensuring that the instrument aligns well with the study's objectives.

In analyzing data, the mean provided a measure of central tendency, indicating the average value of a data set, while the standard deviation measures dispersion. Among the three indexes—mean, median, and mode—the mean is the most stable. Because of its stability, the mean usually is the best estimate of a population's central tendency. This stability enhances the accuracy and reliability of the statistical analysis. Furthermore, the use of standard deviation to measure dispersion allows for a better understanding of variability within the data set, providing insights into the consistency of responses. The combination of these statistical measures ensures that the analysis is both precise and comprehensive, supporting the validity of the study's conclusions.

The study demonstrates several methodological strengths that enhance its validity and reliability because the content validity of the research instrument was rigorously ensured through expert evaluation, which supports the construct validity. Direct observation supported self-reports, laying out an extensive validation and evaluation of the presence of gout crystals, supported by medical records. These strengths collectively contribute to the sturdiness and credibility of the study's findings, providing a robust foundation for its conclusions.

VI. LIMITATIONS AND RECOMMENDATION

The study exhibits several constraints. One of the limitations of the study is the use of patient reported outcomes which rely on the respondents' self-reports. This may be predisposed to recall bias or response bias, leading to inaccurate responses.

A small sample size is also likely to restrict the generalizability of the findings, as the samples may not adequately represent the wider population of interest. Furthermore, small sample sizes may decrease the statistical power also known as sensitivity of the study, making it more difficult to detect significant effects or relationships between variables.

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Other factors not covered in the study that may have an impact on gouty arthritis patients' compliance with treatment should be investigated by future researchers. Social and cultural aspects as well as socioeconomic level are other elements that may influence compliance. It is also possible to carry out an in-depth study that focuses on how respondents perceive their compliance.

Furthermore, to address the potential problem of patient reported outcomes, future researchers could utilize several data collection methods such as direct observation of people's behaviors and characteristics and the use of biomarkers to assess important clinical variables. In addition, utilizing a larger sample size for future studies improves the representativeness of the sample to the broader population, making the study's findings more applicable.

VII. CONCLUSION

In conclusion, having a high extent of adherence with the management of gouty arthritis will result in a high quality of life for the individuals who are suffering with GA.

Such management includes the diet management, activity management and the pharmacologic and nonpharmacologic management of gouty arthritis. Moreover, there is a significant relationship between quality of life and compliance with the management of gouty arthritis. It explains the general significant positive correlation between quality of life and the compliance to the management of gouty arthritis.

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