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Facing dengue and malaria as a public health challenge in Brazil

Enfrentando a dengue e a malária como um desafio de saúde pública no Brasil

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***Palavras-chave*— Saúde Pública, Infecção por Arbovírus, Dengue, Malária.**

***Abstract*—** *The present study seeks to analyze through the literature the main challenges in facing dengue and malaria in Brazil. This is an integrative literature review, which presented a synthesis of the results obtained through published literature research as an argument for the results obtained. The occurrence of malaria in Brazil, especially in the states of Amazonas and Pará, is due to the context of occupation of the region, from the 1970s, triggering an increase in the migratory flow of the region and consequently, disorderly urban expansion. Dengue is considered an urban disease because of the ease with which the mosquito can reproduce and transmit the infection to humans. It is necessary to expand the efforts and public policies already in place to control vectors, in addition to improving the conditions of the determinants and conditioning factors of health, such as infrastructure for waste collection and disposal and basic sanitation.*

I. INTRODUCTION

O constante crescimento urbano e o desenfreado desmatamento ambiental causado pelo homem tem sido considerados um dos principais desafios da atualidade, especialmente devido a propagação de vetores que impactam nas condições de saúde humana e contribuem para o aumento de mortalidade da população mundial (COSTA FONSECA et al., 2022).

A intensa expansão demográfica desencadeia problemas em diversos aspectos que envolvem a saúde pública, principalmente em relação às condições de habitação, saneamento básico e outros serviços considerados essenciais aos determinantes e condicionantes da saúde (DSS) (GOMES et al., 2020). Dentre esses problemas, nota-se o evidente aumento da transmissão de doenças vetoriais, como a dengue e a malária, consideradas importantes causas de morbimortalidade em países subdesenvolvidos, como o Brasil (XAVIER; 2020).

A dengue é uma doença febril aguda causada pelo arbovírus da família Flaviridae, do gênero Flavivirus, transmitida pela picada do mosquito fêmea do Aedes Aegypti. No Brasil, a doença apresenta circulação em todo território nacional, com circulação dos sorotipos (DENV1, DENV2, DENV3,DENV4) e se mantém como causa de epidemias nos últimos 30 anos (LIMA FIALHO et al., 2022).

Devido seu alto poder de circulação no país, a dengue tem se tornado uma das arboviroses de maior importância à saúde pública e vigilância epidemiológica. E nesse viés, foram notificadas somente em 2021 cerca de 5.128.462,60 de casos da forma clássica da infecção e destes, aproximadamente 14 mil necessitam de hospitalização e cerca de 100 evoluíram para óbito (BRASIL, 2022).

A malária é uma doença infectocontagiosa parasitária com manifestações agudas episódicas, causada pelo protozoário do gênero Plasmodium, considerado um grave problema de saúde no mundo devido sua elevada incidência e alta morbimortalidade, encontrada em cerca de 90 países, especialmente em territórios e regiões tropicais e subtropicais (LIMA FIALHO et al., 2022).

No Brasil, as espécies associadas à malária são o Plasmodium Vivax, Plasmodium Falciparum e Plasmodium Malariae. Esses vetores são responsáveis pela transmissão da doença no território brasileiro, sendo que aproximadamente 99% da totalidade dos casos ocorre na região Amazônica (Acre, Amapá, Amazonas, Maranhão, Mato Grosso, Pará, Rondônia, Roraima e Tocantins), região considerada de alta endemicidade devido às condições ambientais permitir a presença e a reprodução do vetor (FERREIRA e CASTRO, 2019; BRASIL, 2021).

Entre as manifestações clínicas causadas pela malária, relaciona-se possíveis sinais e sintomas como prostração, tremores, sudorese, calafrios, cefaleia, vômitos, náuseas e icterícia. O período de incubação do plasmodium varia de 1 a 2 semanas e estão diretamente relacionadas ao tipo de parasita e imunidade do hospedeiro acometido (BORGES e SANTOS, 2022).

Portanto, o presente estudo busca analisar através da literatura os principais desafios no enfrentamento da dengue e malária no Brasil. A realização deste estudo justifica-se pela relevância para a saúde pública discutir a partir da perspectiva dos determinantes sociais, ambientais e epidemiológicos na abordagem da redução da morbimortalidade causadas em consequência a infecção das arboviroses, especialmente a dengue e a malária no Brasil.

II. METHODS

Trata-se de uma revisão integrativa da literatura, onde apresentou-se uma síntese dos resultados obtidos através de pesquisas bibliográficas publicadas como argumento para os resultados obtidos. Para a realização desse estudo, desenvolveram-se as seguintes etapas: (I) Delimitação do tema; (II) pergunta norteadora utilizando a estratégia PICO; (III) busca da literatura nas bases de dados seguindo os critérios de inclusão e exclusão, (IV) revisão dos estudos encontrados; (V) interpretação dos resultados e apresentação da revisão.

Conforme o levantamento da problemática, estabeleceu-se com base na estratégia citada acima, PICO: P=(população): todos os ciclos de vida; I=(interesse): dengue e malária; C= (comparação): não aplicado; O (desfecho): desafios e enfrentamento das arboviroses (Tabela 1) a seguinte pergunta norteadora: Quais os desafios no enfrentamento da dengue e malária no Brasil?

A análise na literatura ocorreu nos meses de maio a setembro de 2022, nas bases de dados Portal de revistas Scientific Eletronic Library Online (SciELO), Medical Literature Analysis and Retrievel System Online (MEDLINE), Biblioteca Virtual em Saúde (BVS) da Literatura Latino-Americana e do Caribe em Ciências da Saúde (LILASCS), através dos seguintes Descritores em Ciências da Saúde DeCS/MeSH “Saúde Pública”, “Infecção por

Arboviroses”, “Dengue”; “Malária”; combinados entre si pelo operador booleano AND.

Para o refinamento adequado desse estudo, o critério de inclusão considerou artigos completos nos idiomas

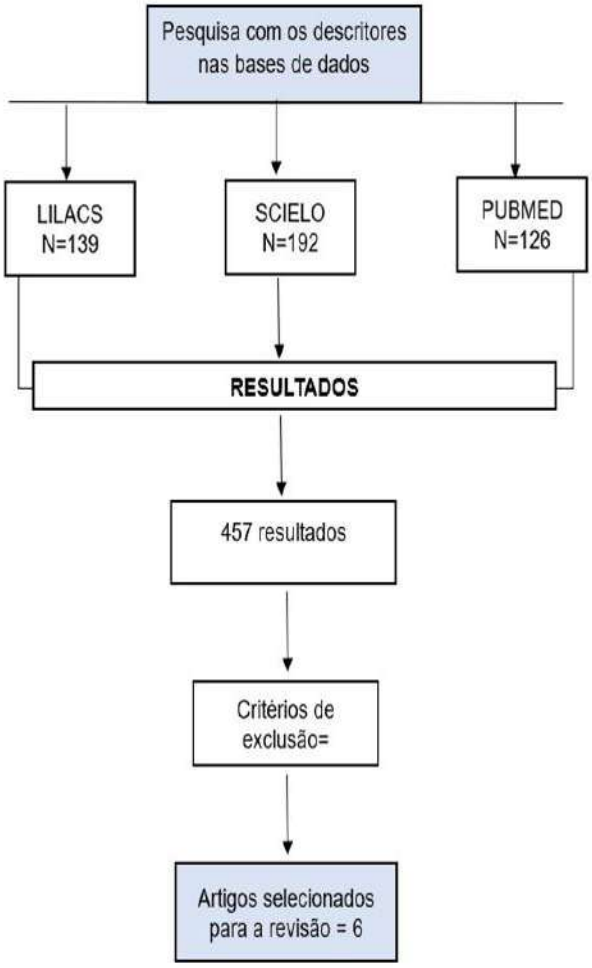
português, inglês ou espanhol, que abordassem a temática dengue, malária ou dengue e malária, no período de 2018 a 2022. Como critério de exclusão os artigos que não contemplassem o tema de interesse da revisão, teses, monografias ou dissertações, artigos em periódicos não indexados, resumos, carta ao editor, artigo de opinião e relatos de experiências (Figura 1).

Tabela 1. Descrição da estratégia PICO.

ACRÔMIO	DESCRIÇÃO
P	Todos os ciclos de vida
I	Dengue e malária
C	não aplicado
O	Desafios e enfrentamento das arboviroses das arboviroes

III. RESULTS AND DISCUSSION

Através das buscas foram encontrados 457 artigos, após a avaliação minuciosa por pares, a amostra final foi constituída por 6 artigos (Figura 1). Tais artigos, foram empregues a uma leitura integrativa, das quais analisou-se o objetivo do estudo, método empregado e resultados (Quadro 1).



Fonte: Os autores, 2023.

Figura 1 - Estudos primários incluídos na revisão integrativa de acordo com as bases de dados

Quadro 1 - Artigos selecionados para a composição do estudo

TÍTULO	AUTOR E ANO	OBJETIVOS	RESULTADOS
Perfil epidemiológico da malária no sudeste do Pará	Silva et al., 2023.	Caracterizar o perfil epidemiológico da malária no sudeste do Pará entre 2010 a 2020.	Entre os anos de 2010 a 2020 foram confirmados 72 casos de malária no estado do Pará. O maior número absoluto de casos por ano foi em 2010 com 16 (22,22%). A região do Tapajós foi a que apresentou maior incidência dos casos com 33 (45,83%) registros.
Malária no Brasil: casos notificados entre 2010 e 2017	Ueno et al., 2022.	Descrever o número de casos notificados de malária no Brasil no período de 2010 a 2017.	Das vinte e seis unidades federativas do Brasil, vinte e duas, incluindo o Distrito Federal, registraram casos de malária no período de 2010 a 2017.
Histórico dos aspectos epidemiológicos e análise de intervenções de saúde pública efetivas no controle da malária no Brasil	Souza, 2021.	Analisar o perfil epidemiológico histórico da malária no Brasil e as políticas pública de saúde implementadas no enfrentamento da malária, além de determinar modos efetivos de controle.	A introdução do Plasmodium na América aconteceu por meio do comercio de tráfico negreiro. Os desafios de combate à malária transpassam questões burocráticas, resultando em difícil aplicação de objetivos e estratégias na minoração quantitativa.
Perfil epidemiológico da dengue no Brasil entre os anos de 2010 à 2019	Menezes et al., 2021.	Analisar e caracterizar perfil epidemiológico dos casos confirmados de Dengue ocorridos no Brasil entre os anos de 2009 à 2019.	Dentre os resultados avaliados pode-se constatar que foram notificados 9.559.582 casos de dengue no Brasil, destacando-se o ano de 2015 com 1.697.801 casos.
Perfil epidemiológico da dengue no brasil entre 2014 e 2022 e os aspectos socioambientais	Sá Junior, Silva e Corrijo; 2022.	Identificar o perfil epidemiológico da dengue no Brasil e realizar a associação destes com os fatores ambientais e socioeconômicos.	Alta prevalência e incidência da dengue nas regiões da federação brasileira, sendo responsáveis por uma alta morbidade, internações, óbitos e oneração do sistema público de saúde.
Condições Socioambientais relacionadas à Permanência da Dengue no Brasil-2020	Ribeiro et al., 2020.	Analisar a dengue como um grave problema de saúde pública e a relação entre sua permanência no Brasil e condições.	o ciclo da doença ocorre em meio a urbe, em clima propício, em regiões com má distribuição de renda e com dificuldade e conscientização social.

Fonte: Os autores, 2023.

As arboviroses como a dengue, malária e outras doenças fazem parte da lista de doenças de notificação compulsória, sendo obrigatoriedade de toda instituição de saúde pública ou privada, na esfera municipal, estadual ou federal realizar a notificação de todo caso suspeito ou confirmado ao Serviço de Vigilância Epidemiológica, para que através das notificações sejam tomadas medidas de prevenção de propagação da doença e redução de riscos (Brasil, 2018).

A redução progressiva na incidência de malária é apontada por Silva e colaboradores (2022) como reflexo das ações intensificadas do Plano de Intensificação de Controle da Malária na Amazônia Legal e do Programa Nacional de Prevenção e Controle da malária no Brasil. Essas ações em diferentes níveis envolvendo vigilância

epidemiológica, monitoramento do vetor, diagnóstico precoce da doença e educação popular em saúde, especialmente a populações prioritárias, como indígenas, ribeirinhos e população rural refletiram na redução da doença (SANTA ROSA et al., 2020).

Entretanto, as ações de controle e erradicação da malária é reforçada em outros estudos. Segundo Oliveira (2015), o combate ao vetor da malária deve ser algo ininterrupto e não só pautado em períodos de surtos da doença, como no inverno amazônico, por exemplo, período de aumento do volume de chuvas, de umidade e áreas inundadas próximas as cidades as margens dos rios, como as metrópoles regionais Porto Velho, Rio Branco, Boa Vista e Macapá, além dos municípios da tríplice fronteira, entre Brasil Bolívia e Peru (PAITER et al., 2013; RODRIGUES et al., 2021).

O panorama nacional da malária registado entre 2010 e 2017 foi de aproximadamente 1,5 milhão de casos. Neste ínterim, o ano de maior incidência da doença foi 2010, com cerca de 325 mil notificações. 2016 foi o ano de menor ocorrência, com 123 mil casos. Neste estudo, Euno et al. (2022) avaliaram redução de 41% no número de casos.

Nesta perspectiva, a Organização Mundial da Saúde (WHO, 2016) reafirmou em relatório global que, apesar da ocorrência da malária no mundo, a incidência da doença tem reduzido globalmente, principalmente entre 2000 e 2015, período no qual houve redução de 41% na incidência da doença no mundo.

De acordo com Souza et al (2021), a ocorrência de malária na região Norte do Brasil, especialmente nos estados do Amazonas e do Pará se dá pelo contexto de ocupação da região, a partir da década de 70, desencadeando aumento no fluxo migratório da região e consequentemente, expansão urbana desordenada, sem planejamento urbano de infraestrutura sanitária acrescida do desenfreado desmatamento, sobretudo em regiões próximas aos principais rios e afluentes das cidades em povoamento.

Em relação a distribuição da dengue no Brasil no período de 2010 a 2019, o estudo de Menezes et al (2021) aponta o perfil predominantemente feminino, na faixa etária de 20 à 39 anos residentes da zona urbana. As variáveis escolaridade e raça/cor não foram analisadas nesse estudo pela incompletude das fichas de notificação. A incompletude de campos essenciais na ficha de notificação de arboviroses de interesse à saúde como a dengue interfere na identificação do perfil acometido pela doença, bem como o monitoramento do vetor.

Para Sá Junior, Silva e Corrijo (2022), a dengue é considerada uma doença urbana pela facilidade de reprodução do mosquito bem como a transmissão da infecção ao ser humano. Este fator pode ser explicado pela alta concentração da população brasileira na zona urbana, especialmente nas capitais (SANTOS et al., 2019).

Ainda no mesmo estudo os autores descrevem os critérios de confirmação da dengue, sendo maior parte (51%) clinico-epidemiológico e laboratorial (29%). Para Medeiros et al (2020), este fator é explicado pela avaliação da sintomatologia clínica em casos suspeitos. Já a confirmação através de sorologia ocorre através da presença de anticorpos do vírus, podendo ser realizada seis dias após o início dos sintomas, antes deste período pode ocorrer falsos negativos.

IV. CONCLUSÃO

Através dos resultados descritos no decorrer deste estudo é possível evidenciar que apear dos esforços para redução da morbimortalidade em decorrência das arboviroses no Brasil, atualmente ainda há alta incidência de dengue e malária, sobretudo em regiões da Amazônia Legal. Os fatores relacionados a elevada incidência dessas duas arboviroses de interesse à saúde pública do Brasil são diversos, entretanto, podemos destacar o desmatamento e a rápida expansão urbana, problemas oriundos por volta de 1970 que persistem até os dias atuais.

No entanto, é necessário ampliar os esforços e as políticas públicas já existentes no controle dos vetores, além de avaliar a eficácia das estratégias tomadas até então. Salienta-se ainda a prioridade na melhoria de condições dos determinantes e condicionantes da saúde, como infraestrutura para coleta e descarte de lixos e saneamento básico.

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Impact of the Covd-19 Pandemic on the Mental Health of Nurses

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***Keywords*— Mental health, Nurses, COVID-19 pandemic.**

***Abstract*—** *The healthMental health is a state of psychological, emotional and social well-being that enables people to cope with life's challenges, realize their potential and contribute to society. The new coronavirus pandemic is triggering mental illness in health professionals, especially those in the nursing team. Faced with the pandemic scenario, nursing professionals can acquire harmful results for mental health, triggering reflexes of their hard work routines. The problematization has to do with the health sector presenting challenging situations for health professionals, as workers often have to deal with different adversities in their daily professional lives. Among the difficulties experienced were those related to the nurses' mental health. Given the above, the problem of this research is: How does mental health affect the health of nurses in times of a pandemic? This article aims to analyze the impact of the COVID-19 pandemic on the mental health of nursing teams and what are the strategies to face this challenge. The methodology used in this article is a research with a quantitative approach, with a descriptive character through a bibliographic review.*

I. INTRODUCTION

Mental health is a state of psychological, emotional and social well-being that enables people to cope with life's challenges, realize their potential and contribute to society. Mental health is critical to quality of life, productivity and overall well-being.

However, many people around the world suffer from mental health issues, including anxiety disorders, depression, eating disorders, autism spectrum disorders, personality disorders and psychotic disorders. These problems can be caused by a variety of factors, including genetics, trauma, stress, substance abuse and social, economic and cultural problems. A pandemic of the new coronavirus is triggering mental illness in health professionals, especially those of the nursing team. In this scenario, stress, anxiety, depression and Burnout Syndrome stand out, caused by insecurity and fear of contamination and spread to the work team, colleagues and family (DAL'BOSCO et. al., 2020). Faced with the pandemic scenario, nursing professionals can acquire harmful results for mental health, triggering reflexes of their hard work routines. Health professionals, especially nurses, are already affected, even in other countries whose pandemic has already passed through the peak of contamination and maintained stability (PEREIRA et al., 2020, p.21). Per Therefore, this article is justified in showing that nursing lives, today, in ambivalence of right or wrong in its

assistance with the emergence of the new coronavirus. This discussion emphasizes the importance of empowering nursing not as war heroes as seen in social media, but as professionals who undergo long hours and differentiated working conditions, due to low contractual levels and regional diversity, which expose these professionals to vulnerability to the risk of physical and mental illness, leading to removal from their employment relationships (BARBOSA et al., 2020).

The Covid-19 pandemic has had a significant impact on the mental health of nurses around the world. These professionals have been at the forefront of fighting the disease, dealing with an intense workload, long working hours, lack of adequate resources and exposure to the risk of infection. These factors combined have led to increased levels of stress, anxiety, depression and other mental health issues among nurses.

The problematization has to do with the health sector presenting challenging situations for health professionals, as workers often have to deal with different adversities in their daily professional lives. Among the difficulties experienced were those related to the nurses' mental health. Given the above, the problem of the present research is: How does mental health affect the health of nurses in times of the pandemic?

This article aims to analyze the impact of the COVID-19 pandemic on

mental health of nursing teams and what are the coping strategies to face this challenge. The methodology used in this article is a research with a quantitative approach, with a descriptive character through a bibliographic review.

II. THEORETICAL REFERENCE

According to the World Health Organization (WHO), around 700 million people worldwide suffer from mental health problems.

In this sense, occupations that require closer contact with people obtain a strong emotional and affective charge, as is usual in Maintenance work. This professional class, from their academic training, when facing situations that require the maintenance of important decision-making, generates uncertainties and anxieties that can trigger or aggravate stress and the skills are required as professionals after graduation cognitive decline, preparation and proactive attitude lead to overload, can turn into depression (MOREIRA; FUREGATO, 2013, p.23).

In Brazil, based on society's need for better living and working conditions in the area of health, there was a movement that culminated in the Constituent Assembly. The country begins to rebuild itself as a rule of law based on the logic of the welfare state, whose function is to intervene and regulate based on political and economic institutions beneficial to the community. All these movements contributed to the emergence of the Brazilian Unified Health System (NOGUEIRA, 2001, p.45).

For Desviat (1999) in the area of Mental Health, the Psychiatric Reform movement supported and further strengthened the issues of changing paradigms in health care.

It was from the denunciations "[...] of living conditions in asylums and the lack of adequate responses to mental health care [...]" that the conditions of Brazilian mental health at that historical moment, became an issue of politics (DESVIAT, 1999, p.142).

In Brazil, the document that legalizes the right to mental health is Law nº. 10,216, of April 6, 2001, the result of a long process of discussion between groups across the country. Initially, the psychiatric reform converged with the Brazilian health movement, characterized by the entry of psi specialists into the space of state health policies and strategies with the aim of integrating health care (AMARANTE, 2013).

According to the WHO, mental health is "a state of well-being in which the individual is able to use his or her own abilities, recover from routine stress, be productive and contribute to the community".

Being productive, in this perspective, concerns not only being functional at work or occupation, but also being able to play the various roles one has in life: that of father/mother, spouse, child, boyfriend/girlfriend (a), friend, among others (RESENDE JÚNIOR, 2021).

However, many people around the world suffer from mental health issues, including anxiety disorders, depression, eating disorders, autism spectrum disorders, personality disorders and psychotic disorders. These problems can be caused by a variety of factors, including genetics, trauma, stress, substance abuse, and social, psychological, and cultural issues.

A pandemic like this directly affects those on the front line and, like COVID-19, represents a high risk of death, generates greater psychological pressure on professionals who work in the pandemic, such as nurses who deal directly with the patient, (SANTOS et al., 2021).

Nursing is the largest occupational category in the region and deals with the patient throughout the workday, making them more susceptible to the effects of mental health during the pandemic. Protection is fundamental in this competition due to the Covid-19 pandemic we are in the health departments and even in our own homes,

it is necessary to take measures based on standard infection control protocols contact, step, use of medical equipment personal protection, n95 mask, aprons, glasses, face shields, gloves, the mental health of employees must also be protected due to the stress imposed on them (TEIXEIRA et al., 2020, p.3465).

Health professionals can become more vulnerable to virus infection than other people, even with the use of personal protective equipment, this is due to the higher viral load to which they are exposed during their professional practice, (SILVA et al., 2021)

According to Almeida et al., (2009), health professionals are mainly exposed to biological risks derived from the work environment.

Likewise, when they use personal protective equipment, they enter into risk situations, as the hospital is an environment that brings together patients with various infectious and contagious diseases and takes into account some procedures that present a risk of accidents and illnesses for the personnel in the area (ALMEIDA et al., 2009, p.595).

Health workers faced the pandemic in a new routine, uncertainty in the work process and health system problems such as lack of support infrastructure, shortage of productive inputs, lack of personnel, lack of personal protective equipment, long working hours , overload, low wages and lack of education that contribute to employee illness.

Even with the use of personal protective equipment, there is vulnerability to a risk situation, for this professional, when carrying out any hospital activity, he is exposed mainly to biological risk when providing assistance to patients, therefore, nursing is one of the main categories of subjects exposed by biological material (ALMEIDA; BENATTI, 2007, p.45).

According to Barbosa et al. (2020) Another factor that had a great psychological impact during the pandemic was that nurses had to distance themselves from the people they loved most, such as family and friends, due to uncertainties and lack of information about how people could catch the virus.

Health professionals are working on the front lines to provide direct assistance, spending most of their time alongside patients with Covid-19. In this sense, it was not possible for these professionals to have contact with people from their family ties, the fear was of infecting family members with an unknown disease, with little information on how to transmit and treat it. And to make matters worse, it is the alarmist way in which the media deals with the form of transmission that has generated fear and suffering, leading professionals to emotional exhaustion (BARBOSA et al., 2020, p.31)

According to Oliveira (2020), mental stress was influenced by the lack of specialists, which directly affected the dimension of nursing work, since the long working hours and the lack of knowledge and training to care for COVID patients were taken into account. 19.

The new coronavirus pandemicis triggering mental illness in health professionals, especially in the nursing team. In this scenario, stress, anxiety, depression and Burnout Syndrome stand out, caused by insecurity and fear of contamination and its spread to the work team, colleagues and family members.

Faced with the current pandemic scenario, nursing professionals can acquire harmful results for mental health, reflections of the triggering factors of their hard work routines. Health professionals, especially nurses, are already affected, even in other countries whose pandemic has already passed through the peak of contamination and maintained stability (DAL'BOSCO et. al., 2020; PEREIRA et al., 2020, p. 21).

The COVID-19 pandemic significantly affected the mental health of nurses. Nurses are working under extremely stressful conditions and facing a large number of patients and/or deceased. They are also facing the risk of getting the virus and passing it on to their loved ones.

These factors have led to an increase in cases of stress, anxiety, depression, insomnia and emotional anxiety among nurses. In addition, nurses are being exposed to high levels of work-related trauma, which can lead to the development of post-traumatic stress disorder (PTSD) symptoms.

Prevention is a way to avoid occupational health problems that trigger exposure, but workers must be aware of the risks they are exposed to (SOUZA et al., 2017).

The intervention impliesan objective and concrete action in a given reality, in this case to respond to the emotional suffering of nursing professionals in the COVID-19 pandemic. Faced with the emergency situation, the methodology defined for the intervention respected the qualification of the selected team: nurses specialists, professors or doctors, who had affinity with the subject and technical condition to organize and intervene in the execution of actions (COFEN, 2017).

Regarding preventive measures to avoid occupational diseases during the pandemic, the measures were as follows:

regular psychological support to deal with mental distress, psychiatric follow-up, opportunity to talk with friends or family, conference and dialogue with a professional psychiatric nurse strategies adopted to deal with anxiety,

such as breathing and relaxation techniques all these measures helped to reduce the consequences of the pandemic for mental health professionals (AVILA et al.; 2021, p.89).

Mental health is an interdisciplinary field that encompasses a variety of treatment approaches, including cognitive behavioral therapy, dialectical behavior therapy, interpersonal therapy, and psychodynamic psychotherapy, as well as medication and alternative treatments such as acupuncture and meditation. Successful treatment of mental health issues requires an integrated, holistic approach that involves teamwork of mental health professionals, patients and their families.

To prevent mental illness among nurses during the COVID-19 pandemic, it is important to adopt measures that promote mental health and well-being. Some of the measures that can be accepted include:

- Providing adequate PPE and training in its correct use: Providing adequate PPE to protect against the virus and training in its correct use can help reduce nurses' anxiety and stress.
- Provides emotional and psychological support: It is important to provide nurses with access to counseling and therapy, as well as mental health support programs in the workplace. This can include individual or group counseling sessions, as well as stress management interventions such as training exercises and meditation.

It is important that steps are taken to prevent and treat mental health problems among nurses, including providing psychological support and emotional support, access to therapy and counseling, and the adoption of more flexible working hours. In addition, it is critical that effective PPE and protective measures are provided to reduce the risk of infection.

It is important to provide nurses with resources and support to help them deal with these challenges. This can include access to therapy and counseling, as well as mental health support programs in the workplace. It is also important to provide effective PPE and protective measures to reduce the risk of infection.

Nurses also need time to rest and recover. It is critical to ensure that nurses have flexible working hours and enough time to recover physically and emotionally after periods of work. In addition, providing opportunities for leisure and relaxation activities can be useful to reduce stress and improve the mental health of nurses during the pandemic.

III. METHODOLOGY

This is a research with a quantitative approach, with a descriptive character through a bibliographic review, carried out in the following steps: Identification of the theme and guiding research questions; establishment of inclusion and exclusion criteria; literature search; data collect; selection of articles, critical analysis of articles; discussion of results and conclusion.

Obibliographic surveywas carried out from August to October 2022, with the inclusion criteria being original studies, fully indexed in the last 5 years, available online, in Portuguese. Gray literature, editorials, letters to the reader, articles that did not address the subject of the study and incomplete indexed articles were excluded.

A search of the articles occurred in the databases of the Virtual Health Library (BVS), Latin American and Caribbean Literature in Health Sciences (LILACS), Scientific Electronic Library Online (SciELO) and Google Scholar. The descriptors obtained by the DECS (Health Sciences Descriptors) vocabulary tool were used: Mental health, nursing, COVID-19 pandemic. After dynamic reading and analysis criticizes the articles went through a selection process. From data collection, 39 articles were selected, of which 8 were found in Google Scholar, 10 in LILACS, 10 in SciELO and 11 VHL. Afterwards, the following filters were applied: year of publication, complete texts that best met the theme of the work, available online, published in the national literature.

IV. RESULTS AND DISCUSSIONS

The results of this study revealed through interviews with 10 nursing professionals in the municipality of Nanuque in the state of Minas Gerais that there were several difficulties that nurses face in their workplaces, taking care of patients during the COVID-19 pandemic, for example : increased workload due to having to replace professional training, difficulties with dressing/undressing breaks and long shifts.

The characterization of the study participants showed a predominance of female nurses interviewed 70% are female and 30% male, 75% are married and 25% are single, 85% have children. In general, women are more affected in terms of their mental health, due to the great demand they have for being professionals and mothers.

According to epidemiological data from the Ministry of Health (MS), there are cases of COVID-19 in Brazil that have grown rapidly. Until January 2020, only 2,798 cases were registered in June.

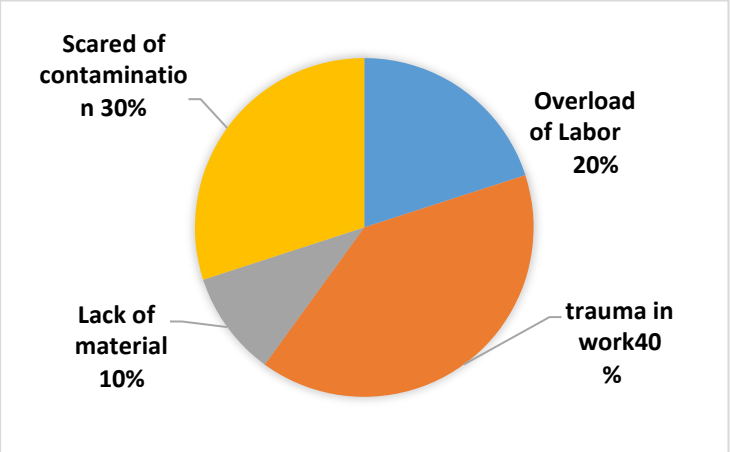
In 2020, the number of cases increased to 850.51 cases and 1,828 deaths were recorded. End of 2020, Brazil There were 7,65,806 cases of COVID-19 and more than 190,000 deaths. February 2021 registered 10,517,232 cases, of which 25,221

died, and in July 2021 there were already a total of more than 20 million and more than 500,000 deaths from COVID-19 (BRASIL, 2021, p.23).

The increase in cases of this virus overwhelmed the Brazilian health system, hospitals were at 100% capacity and health professionals worked for about 8 hours straight to cure the disease and many difficulties were encountered (LAI et al., 2020).

The factors that triggered nurses' mental health problems during the COVID-19 pandemic are complex and multifaceted. It is important to address these factors to help prevent and treat mental health problems among nurses and what we will see in graph 1.

Graphic 1-Situations that cause stress in nurses.

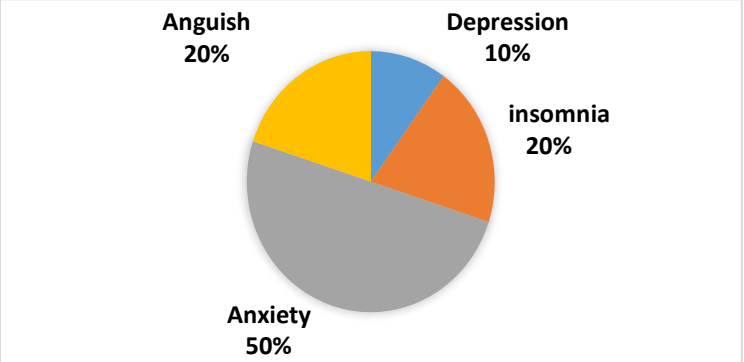


Source: Elaborated by the author.

According to the graph, the situation that caused the most stress to nurses with 40% trauma at work due to the pandemic, with 30% fear of contamination, 20% work overload, 10% due to lack of material. COFEN manifests itself in the lack of protective equipment (PPE) and highlights that the worker's health is at risk and the lack of specialists due to absenteeism due to contamination can contribute to the collapse of the unified health system (COFEN, 2020).

According to Dantas (2021), the mental health of professionals is shaken during the pandemic, due to despair, hopelessness, exacerbated fear of repeating the phenomena, fear of dying and of family members, fear of being infected by other people, given the isolation measures which can facilitate the appearance of post-traumatic stress, depressive and anxious symptoms and suicidal behavior, as we will see in Graph 2.

Graph 2-Aspects that favor the appearance of mental suffering in nurses working on the front line.



Source: Elaborated by the author.

As we saw in Graph 2, exposure to the Covid-19 virus had a direct influence on the mental health of health professionals. Many nurses who took care of patients with Covid-19 exhaustively, showed that a large number of professionals reported symptoms related to depression (10%), anxiety (50%), insomnia (20%) and anguish (20%), with the more expressive symptoms were in female nurses, who were directly involved in the diagnosis and care of patients with COVID-19.

The World Health Organization (WHO) points out that caregivers stressed by this situation have high levels of anxiety, increased risk of diseases, which, in addition to anxiety, depression and related stress, leads to serious mental health problems and increases cases of burnout syndrome (WHO, 2020).

The COVID-19 pandemic has also put a huge emotional strain on nurses, who are facing an unprecedented amount of patient deaths and suffering. This can lead to symptoms of post-traumatic stress, anxiety, depression and emotional burnout.

Additionally, nurses are working in a stressful and unpredictable environment where rules and protocols can change quickly. This can lead to feelings of distress and insecurity, which can further increase mental anguish.

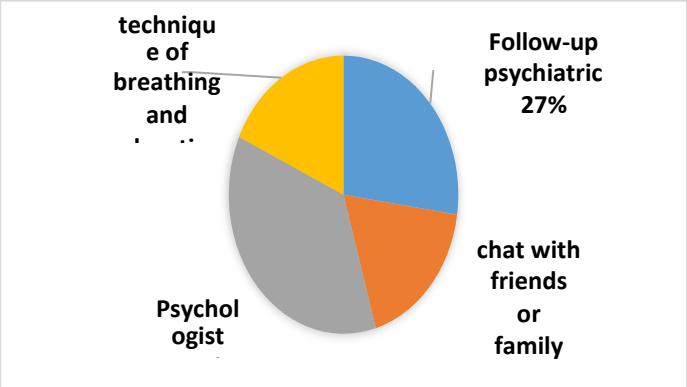
The results of this study showed that nurses presented anxiety during a pandemic characterized by a feeling of loss of control and fear of their lives due to spending most of their time with their

patients, which puts them at the forefront of the fight against the disease (BARBOSA et al., 2020).

In this sense, as a way of preventing psychic problems, Dal' Bosco et al. (2020), suggested that the professional seek information about the risk and protection factors in relation to the pandemic, and what it would entail in their routines, thus seeking coping strategies, such as

specialized psychological support, consultation with the psychiatric doctor and carrying out complementary integrative practices such as Yoga and Reiki. Regardless of the pandemic, it is important that institutions, especially area managers who are closest to nurses, be able to adopt methods to detect changes in the behavior of professionals and signs of mental exhaustion, as shown in Graph 3.

Graph 3-Measures adopted to support the mental health of nurses.



Source: Elaborated by the author.

Graph 3 describedthe measures adopted by nursing professionals to deal better with mental health as follows: 37% used regular psychological support to know how to deal with mental suffering, 27% of nursing professionals received psychiatric follow-up, another 18% created the habit talking to friends or family, lecture and the other nurses 18% adopted strategies for coping with anxiety, such as breathing and relaxation techniques. All these measures helped to reduce the impacts of the pandemic on the mental health of professionals. Second souza et al., (2021), emphasized the importance of nurses not isolating themselves, they should talk to friends and colleagues, share experiences, even virtually, they should consider the difficulties experienced and do calm activities such as breathing exercises and meditation.

In the same way,Pereira et al. (2020), emphasized the need to promote well-being maintenance activities that contemplate the individual, also highlighting the importance of increasing the professional contacts of the psychologist, social workers to create a collaborative relationship to reduce stress, anxiety and depression.

It is essential that measures to support the mental health of nurses are implemented. This includes access to counseling and psychotherapy services, stress management programs, adequate workplace resources, regular breaks, peer support, and recognition of your hard work and benefits during the pandemic. Self-care is also crucial, with the promotion of activities that help reduce stress, such as physical exercise, adequate rest and time for relaxation and leisure.

V. CONCLUSIONS

In view of the data analysis, it was evident that during the pandemic, the work carried out by nursing professionals was intensified due to the emergence of a disease, which comes from a family of viruses, unknown to most people, but known to scientists. However, the way in which it manifested itself was different, causing an unknown reaction in the human body, with symptoms that were confused with other diseases. What left people most scared was the way of contagion with the virus, since in different parts of the world the contamination was very fast, leading to a collapse of the health system in several countries.

A mental exhaustion is one of the main concerns of nurses during the COVID-19 pandemic. Due to the increased demand for healthcare, nurses are working long hours and are often overworked. This can lead to mental, emotional and physical fatigue, which can affect your ability to provide quality patient care.

The COVID-19 pandemic has also put a huge emotional strain on nurses, who are facing an unprecedented amount of patient deaths and suffering. This can lead to symptoms of post-traumatic stress, anxiety, depression and emotional burnout.

Furthermore, nurses areworking in a stressful and unpredictable environment where rules and protocols can change quickly. This can lead to feelings of distress and insecurity, which can further increase mental anguish.

To deal with these issues, it is important that nurses receive emotional and psychological support, as well as time to rest and recover. This can include access to counseling and therapy, workplace mental health support programs, and more flexible working hours.

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Rural Education and the Use of Digital Technologies: A Look at the Structure and Functioning of Teaching in the Context of the Municipality of Altamira/Pará

Educação do Campo e o uso Das Tecnologias Digitais: Um olhar sobre a Estrutura e o Funcionamento do Ensino no Contexto do Município de Altamira/Pará

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***Abstract*—** *Technological advances in the first decade of the 21st century created a social dynamic marked by technological advances that transformed everyday behavior and people's way of being in local and global contexts. Technological advances demanded that information, strategies, resources and knowledge were in people's hands, including the process of using digital technologies in rural education. Specifically, this context influenced the reflection on the use of technologies in rural education in the municipality of Altamira in Pará/Brazil. Thus, in this research, a bibliographic survey was carried out on technologies and their use in rural education, as well as a survey of data from the Department of Education on the structure and functioning of teaching in schools in rural areas. Content analysis for data processing revealed the precariousness of rural education in terms of buildings and technological infrastructure, as well as the lack of initial and continuing training of teachers with Information and Communication Technologies. The experience of Educação do Campo in Altamira-PA demonstrates the distancing from Brazilian legal requirements and scientific stimuli on the use of technologies in teaching. In addition, he emphasized the growing interest of government entities in supporting educational public policies for digital inclusion in rural education.*

***Resumo*—** *Os avanços tecnológicos na primeira década do século XXI criaram uma dinâmica social marcada por avanços tecnológicos que transformaram o comportamento cotidiano e o modo de ser das pessoas em contextos locais e globais. Os avanços tecnológicos exigiram que informações, estratégias, recursos e conhecimentos estivessem nas mãos das pessoas,*

incluindo o processo de utilização das tecnologias digitais na educação do campo. Especificamente, este contexto influenciou a reflexão para o uso de tecnologias na educação do campo no município de Altamira no Pará/Brasil. Assim, nesta pesquisa foi feito um levantamento bibliográfico sobre as tecnologias e seu uso na educação do campo, bem como um levantamento de dados da Secretaria de Educação sobre a estrutura e funcionamento do ensino nas escolas do meio rural. A análise de conteúdo para tratamento dos dados revelou a precariedade da educação do campo em termos de edificações e infraestrutura tecnológica, bem como a ausência de formação inicial e continuada de professores com Tecnologias de Informação e Comunicação. A experiência da Educação do Campo em Altamira-PA demonstra o distanciamento das exigências legais brasileiras e dos estímulos científicos sobre o uso de tecnologias no ensino. Além disso, enfatizou o crescente interesse de entidades governamentais em apoiar políticas públicas educacionais de inclusão digital na educação do campo.

I. INTRODUÇÃO

A sociedade contemporânea, com a acelerada mudança causada pela revolução tecnológica passa por transformações em seus modelos, métodos e técnicas de desenvolvimento socioeconômico, alicerçada a novas perspectivas e formatos de trabalho que integram atividades científicas, tecnológicas e sociais.

A medida em que as ciências avançam, as tecnologias disruptivas proporcionam um espaço inovador para a vida e o bem-estar do ser humano, onde a informação conectada às ferramentas de inclusão abre espaço para grandes descobertas no campo do conhecimento. E, não somente, trazem para o homem mais praticidade no cotidiano, e em outras áreas como na educação, facilitam o acesso a recursos diversificados que otimizam o processo de ensino e aprendizagem.

Pensar na contemporaneidade, remete a sociedade da informação e comunicação, em que a demanda consumidora exige que os profissionais estejam preparados para trabalhar com os avanços gerados pelas tecnologias, realizando tarefas de forma hábil e com qualidade. Os resultados almejados, por sua vez, encontram-se nos patamares mais elevados, assim, as pessoas precisam estar preparadas para criar, desenvolver e concluir projetos simultaneamente.

Em meio aos constantes avanços tecnológicos vivenciados pela sociedade é visível as formas como as Tecnologias da Informação e Comunicação (TICs) têm sido incorporadas a diferentes contextos e campos da atividade humana. No cotidiano do campo, por exemplo, passamos a presenciar o desenvolvimento e a apropriação de recursos tecnológicos em múltiplas situações. O uso das tecnologias na realização de tarefas no âmbito profissional/pessoal das comunidades do campo tem se mostrado cada vez mais presente em seu cotidiano.

A influência das TIC's sobre as ações nos diversos espaços sociais decorre de um conjunto de transformações, inclusive com o avanço tecnológico, que já vinham ocorrendo desde o final do século XX e que tomou corpo com o advento de uma nova era das tecnologias que teve como forte influência a criação da chamada WEB 2.0 afetando definitivamente nossa comunicação social e interligando nossas práticas em dois níveis, como diria Santos (2002) [1], que considera a globalização um processo de relação dialética entre o local e o global uma vez que os produtos sociais contribuem para universalizar determinadas práticas, mas também interligar as localidades.

A web 2.0 foi um termo que se referiu a uma segunda geração de comunidades e serviços usando a internet e, especificamente, aplicativos baseados em redes sociais e tecnologia da informação. Silvano (2023) [2] relata que esta nova geração popularizada pela web 2.0 não era apenas uma geração de software. De fato, tratava-se de Um novo modo de intermediar as práticas sociais globalizadas modificando nosso modo de fazer democracia, economia, negócio empreendedorismo, demandando descentralização, partilha e colaboração.

No entanto, como se trata de socializações do mundo capitalista, não se pode deixar de considerar a análise feita pelo sociólogo Manuel Castells de que esta relação em rede tem também um caráter assimétrico porque a globalização também é responsável por produzir desigualdades sociais. (CASTELLS, 1999) [3]. E é em relação a este aspecto que a educação se torna uma prática social cuja finalidade assume elevada importância para

inclusão das pessoas em diferentes localidades no mundo globalizado porque é por meio dela que se pode fazer com que mais pessoas tenham acesso aos padrões da rede que envolve a aquisição de habilidades e conhecimentos para atender a demandas provenientes das forças produtivas na era da informação, assim como contribuir para uma nova socialização que venha incluir nas gerações futuras a preocupação com temas como o meio ambiente e o bem estar social.

Uma questão relevante para a educação neste contexto é considerar que da sociedade em rede surge uma sociedade da aprendizagem em função mesmo da mudança paradigmática introduzida pela WEB 2.0 em que o usuário da internet passa de consumidor a produtor da informação. Coutinho e Alves (2010) [4] ao nos falar sobre o potencial educativo da internet discute que na sociedade da aprendizagem somos introduzidos em numa relação inovadora com o conhecimento e a aprendizagem até porque, independente se isto acontece em ambientes formais ou informais, trata-se agora de um processo que se perpetua por toda a nossa vida fazendo da internet e das TIC's um novo modo de comunicação, de interação, mas também, e acima de tudo, de aprendizagem.

No que se refere à educação do campo, embora muitos argumentos neste domínio da educação tendem a privilegiar um argumento em busca da identificação da escola com a cultura e os saberes construídos pela comunidade, Molina et. al. (2010) [5] afirmam que isto não dispensa atenção quanto aos saberes necessários a uma cidadania planetária, destacando que há muitas vantagens e compatibilidades se o homem do campo consegue trazer para o seu cotidiano informações que eles possam ter acesso mediante a internet. Sabemos que o acesso ao computador pelas comunidades rurais em todo Brasil ainda acontece de forma restrita e isto se alarga quando se trata da infraestrutura que deve ser garantida pelas escolas públicas. Mas se deve reconhecer, e estes autores não deixam relatar, que acessar as informações pela internet é inclusive um modo de melhorar as condições e concepções de vida no campo, pois os trabalhadores e até os estudantes podem ter acesso às novas técnicas para plantar e cultivar usando tecnologias concebidas como ecológicas e sustentáveis, intermediar inovações provenientes de outras realidades e ou práticas sociais e educativas que possam melhorar a qualidade de vida da comunidade.

Por isso, o papel do professor nesta realidade recebe desta nova era da informação o desafio de estar ao mesmo tempo profundamente vinculado às identidades culturais das comunidades e integrado com as demandas do processo de globalização. Neste sentido, como diz Stefanello (2023) [6], tecnologia e educação são ao mesmo tempo complementares e indissociáveis, de modo que não é possível a debater o processo formativo de professores dissociado das ferramentas tecnológicas. Portanto, ao professor cabe organizar a experiência para que se alcance a aprendizagem de forma efetiva.

Uma das formas para avançar no ensino de ciências com o uso da tecnologia encontramos na da pesquisa realizada por Araújo e Ramos (2023) [7] que apontou o uso de metodologias ativas no ensino de ciências e a sua variabilidade em práticas educativas. Os autores analisando a efetivação práticas com metodologias ativas mostrou que estas resultaram em produções criativas e com relevância social no curso da aprendizagem. A exemplo disso, quando realizado a avaliação, ela se mostrou um processo mediador para o alcance da aprendizagem dos alunos e o conhecimento deixou de ser visto como uma prerrogativa do professor, fazendo das tecnologias um mediador para as aprendizagens entre os sujeitos estimulando uma relação dialógica.

Nessa perspectiva, as discussões em relação à integração das tecnologias digitais e a formação de professores da educação do campo se apresentam em constante crescimento, principalmente sobre a formação inicial e continuada. Outro aspecto a ser considerado nessas discussões está relacionado a utilização das tecnologias digitais no processo de ensino e aprendizagem na escola do campo, porém se faz necessário investigar esse tema na perspectiva de a prática docente no sentido melhorar e ampliar a utilização do ambiente virtual por parte dos docentes. (PIMENTA et al, 2012) [8] Esses aspectos, dentre outros, possibilitam compreender o papel das tecnologias na educação do campo e a necessidade de repensar a formação docente para a utilização dessas ferramentas no fazer pedagógico dos professores.

As Tecnologias da Informação e Comunicação TIC's há muitos anos vêm dominando as esferas sociais, devido as suas facilidades de superar as barreiras temporais e geográficas, permitindo a interação em tempo real, comunicação e compartilhamento de informações que posteriormente transformarão em conhecimento [9]. Nesse momento, a escola do campo não pode se eximir de incorporá-las em sua organização pedagógica, pois essas tecnologias estão inseridas na sociedade de uma forma que não conseguimos mais viver sem elas.

Nessa perspectiva, o presente estudo tem como objetivo refletir sobre as TIC's presentes nas escolas do campo do município de Altamira-PA, com destaque para a Escola Polo Sol Nascente e discutir as tecnologias presentes nas práticas pedagógicas dos professores.

Diante do panorama educacional que estamos vivenciando, onde as tecnologias estão cada vez mais presentes no cotidiano da sociedade, a sistematização de

informações que possam contribuir com discussões sobre Educação do Campo e Tecnologias da Informação e Comunicação (TICs) precisam ser concretizados no contexto amazônico. A relevância do estudo está associada a possibilidades de discussões sobre as políticas de inclusão digital para comunidades do campo, criando oportunidades para o desenvolvimento científico-econômico-social.

II. MATERIAL E MÉTODOS

A metodologia para o desenvolvimento do estudo foi realizada numa perspectiva a pesquisa qualitativa, por possibilitar uma maior aproximação do pesquisador com o tema que abordou, inicialmente, sobre as tecnologias e seu uso em escolas do campo tomando como referência uma pesquisa bibliográfica sobre uma literatura disponível sobre este tema. Depois disso, discutiu as condições de infraestrutura e funcionamento das Tecnologias da Informação e Comunicação (TICs) nas escolas do campo no município de Altamira/Pará [10].

Quanto à primeira tarefa de nossa pesquisa, realizamos um levantamento bibliográfico, baseado em autores como Carvalho et al. (2019) [11], Batista (2022) [12] e Silva, Silva e Santos (2022) [13], que possibilitou discussões acerca da temática tecnologias na educação do campo. Esses autores contribuíram com as discussões acerca do uso das tecnologias da informação e comunicação (TICs), promovendo reflexões sobre um tema relevante na conjuntura educacional brasileira contemporânea com foco na educação do campo.

A coleta de dados foi realizada nas bibliotecas digitais da UEPA, *ResearchGate* e *SciELO* utilizando os seguintes descritores: tecnologias, Tecnologias da Informação e Comunicação (TICs) Amazônia Paraense e Educação do Campo. Os critérios de inclusão foram produções científicas em formato de produtos ou estudos, com texto na íntegra, publicados nos últimos 10 anos.

Inicialmente, 15 (quinze) produtos/processos educacionais e artigos arrolados a temática foram selecionados, no entanto, num segundo momento após filtragem, apenas 7 (sete) produções foram escolhidas para leitura e interpretação. A maioria dos trabalhos escolhidos abordavam a importância do emprego das TICs na educação camponesa, instrumentos que podem ser utilizados, suas características etc., mas também as dificuldades desse processo de inclusão tecnológica/digital na prática do professor da educação do campo.

Os produtos selecionados estão abaixo organizados conforme a Tabela 1 demonstra.

Tabela 01 - Autores e Produtos/Processos Educacionais Estudados

Nº	ANO	TEMA	PUBLICAÇÃO	AUTOR(ES)
01	2018	Educação do/no campo: uma reflexão da trajetória da educação brasileira.	Universidade Federal de Uberlândia	Santos P, Vinha JFSC.
02	2019	Ciência, inovação e tecnologia na Amazônia	Stricto Sensu	Carvalho CM et al.
03	2020	Uma experiência de educação híbrida no interior da Amazônia: entre práticas, aprendizagens e contradições	Revista Prâksis	Lopes R, Cordeiro LZ.
04	2020	**I.** PROBLEMATIZAÇÕES DAS TECNOLOGIAS DIGITAIS NA FORMAÇÃO DO PROFESSOR DE HISTÓRIA NO CONTEXTO AMAZÔNICO	Esboços	Cordeiro LZ, Costa RP.
05	2020	**II.** O TRABALHO E A PESQUISA NO ENSINO MÉDIO INTEGRADO À EDUCAÇÃO PROFISSIONAL: UMA NOVA PERSPECTIVA DE DESENVOLVIMENTO RURAL	Revista Brasileira de Educação do Campo	Sobrinho STN, Sousa RP.
06	2022	**III.** PANDEMIA, ENSINO REMOTO E EDUCAÇÃO DO CAMPO: O QUE APRENDEMOS COM ESSE NOVO NORMAL?	Educação do campo: perspectivas plurais e emergentes	Batista OA.
07	2022	**IV.** EDUCAÇÃO DO CAMPO: PERSPECTIVAS PLURAIS E EMERGENTES	Universidade Federal do Piauí	Silva FC, Silva MF, Santos MF (Orgs.).

Fonte: Elaboração dos autores, 2022.

A segunda tarefa realizada tratou-se da análise do material complementar para a coleta de dados que foram informações acessadas sobre a Educação do Campo do Município Altamira-PA, disponibilizados pela Secretaria Municipal de Educação (SEMED), complementando as discussões sobre as tecnologias para a população que abarca esta modalidade de ensino.

De um modo geral, o processo metodológico adotado no conjunto de trabalhos formou-se basicamente de três fases, a saber: a realização de leitura detalhada identificando elementos constitutivos; a formação de eixos de análise pelos quais as relações entre os textos foram estabelecidas aproximando um conjunto de ideais/conceitos que versam sobre as temáticas e, por fim, a distribuição dos artigos selecionados.

As informações coletadas foram analisadas a partir da perspectiva vislumbrada na aplicação da análise de conteúdo. A análise de conteúdo incide sobre várias mensagens, desde obras literárias até entrevistas, como também o fenômeno da observação *in loco*, que fornece subsídios fundamentais para a real apreciação do contexto vivenciado pela educação camponesa paraense tal como sugere Abramovay (1992) [15].

III. RESULTADOS E DISCUSSÃO

3.1 EDUCAÇÃO DO CAMPO NO ESTADO DO PARÁ: DIÁLOGO INTRODUTÓRIO SOBRE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA

Esta parte do texto resulta da revisão da literatura indicada anteriormente que busca mostrar como os autores estão abordando a apropriação das TIC's em escolas de educação do campo, situando alguns dos problemas dentre os quais podemos situar aquele ou aqueles que podem ser mais urgentes e influentes para as escolas em espaços rurais no norte do país.

O movimento social do campo no estado do Pará é reconhecido por sua história permeada por lutas pela garantia de seus direitos, dentre eles a terra, saúde e educação. No entanto, não basta apenas considerar o sujeito coletivo como dependente no processo do desenvolvimento paraense, é preciso, sobretudo, considerar o papel que cada indivíduo possui como protagonista na construção histórica e permanência da vida do povo do campo, mostrando que a educação do campo, como alternativa que se fez por uma nova política para a educação em espaços rurais, trata-se de uma busca destes indivíduos para o reconhecimento de suas culturas e saberes inerentes ao cotidianos em sua comunidade [13].

Por outro lado, a literatura também tem nosso apresentado que a educação do campo se desenvolveu ao mesmo tempo em que a produção agrícola ganha espaço no cenário nacional, exercendo não somente sua grande influência econômica sob os recursos oriundos do Estado, mas também exigindo a incorporação de avanços tecnológicos que possibilitassem transmutar o trabalho artesão para o emprego de ferramentas que aperfeiçoassem os métodos e técnicas, promovendo maior produtividade no meio. A educação, por conseguinte, vem alicerçada a este duplo processo, pois engloba a ciência, a tecnologia e a inovação e sua inserção nas práticas culturais visando a melhora do trabalho camponês [15].

Desde o ano de 2003, o processo de escolarização vem ganhando atenção dos vários atores do campo científico e tecnológico, como professores, governantes e outras figuras públicas, envolvidos nos movimentos para o desenvolvimento e garantia dos direitos das crianças, dos jovens, dos homens e mulheres do campo, principalmente no que diz respeito à amplificação dos olhares da sociedade para com os desafios que são cotidianamente enfrentados pelo injusto acesso a recursos que são fundamentais para a concretização de uma vida digna [13].

No que diz respeito especificamente às tecnologias no contexto da Amazônia Paraense, percebe-se que estas estão sendo cada vez mais disseminadas pelo território regional, entretanto, ainda é passível muitos impedimentos e desafios que devem ser superados para que se consolide efetivamente os objetivos propostos no engajamento destes recursos digitais inovadores à vida e a culturas destas comunidades [16].

Cordeiro e Costa (2020) [17] esboçam que as Tecnologias Digitais da Informação e da Comunicação (TICs) são estratégias funcionais para proporcionarem aproximação das comunidades às demais realidades vivenciadas pelo povo brasileiro, cada qual em sua região, mas, sobretudo, oportunizando a construção de conhecimentos variados. Neste sentido, o papel das tecnologias para estas comunidades converge com o que Santos (2002) [1] já nos tinha chamado a atenção quanto a função de interligar as localidades quando efetivamente os diferentes espaços sociais se integram pela tecnologia.

Neste sentido, como parte para fomentar a luta já traçada para a educação do campo, as tecnologias possibilitam que crianças, jovens e adultos aprendam a lidar com as mais variadas situações do uso de ferramentas tecnológicas. Nessa perspectiva, argumentamos que a aplicação significativa das tecnologias digitais na formação do professor que atua na educação do campo é de fundamental relevância desde que haja definição prévia de objetivos de aprendizagem até porque se já avançamos para uma sociedade que intermedeia suas relações pela tecnologia e informação é porque precisamos intensificar a sua entrada numa sociedade da aprendizagem.

Além disso, para que mantenham suas atividades econômicas com deliberado acesso a experimentação de novas realidades e alternativas que facilitem as operações diárias [15], há de se dizer que impedimentos inerentes aos avanços tecnológicos são percebidos em toda sociedade, principalmente aos relacionados às dificuldades de adaptação às mudanças bruscas que o processo de tecnização propicia aos meios, uma vez que nem sempre é possível compreender totalmente os processos, tampouco assumir a responsabilidade por possíveis erros cometidos nas estratégias delineadas. Soma-se a isso, uma necessidade emergencial de superação dos próprios medos do fracasso para que, ao assumirem as responsabilidades, se contribua com novas táticas e estratégias mais ajustadas às necessidades do meio [12].

Segundo Carvalho et al. (2019) [11] a Amazônia se destaca no cenário brasileiro em termos produtivos. Uma região dotada de recursos naturais que, quando incorporados de maneira adequada a ciência, a tecnologia e a inovação podem agregar ainda mais valor à região. Concomitantemente, eles corroboram com o fortalecimento da economia local ao mesmo tempo em que preservam o meio ambiente e tornam o meio social um espaço para amplos debates políticos e estratégicos.

Uma das formas de proporcionar essa aproximação dos educandos às tecnologias recorrentes é criar oportunidades de contato com dispositivos eletrônicos e recursos audiovisuais para que possam explorar outras realidades e conhecer novas formas de produção e mecanismos processuais, sobretudo, elevar a qualidade do ensino e da aprendizagem para que se apropriem de outros conhecimentos [14].

Estudiosos como Sobrinho e Sousa (2020) [18] dedicam seus estudos à educação do campo no contexto de reafirmar a importância da intervenção tecnológica e científica para avanços nas modelagens de ensino propagadas para os camponeses. Ressaltam a urgente necessidade de entidades inclinarem seus olhares para o "descaso" com a realidade experimentada *in loco*, uma vez que no planejamento pedagógico as comunidades do campo são orientadas a seguirem propostas urbanas, mas, permanecem escassos dos recursos necessários para atendimento a esses estudos.

3.2 DADOS SOBRE INFRAESTRUTURA, EDUCAÇÃO, CIÊNCIA E TECNOLOGIA NA EDUCAÇÃO DO CAMPO EM ALTAMIRA-PA

Altamira é um município brasileiro localizado no estado do Pará, na Região Norte do país. Sua população estimada em 2020 era de 115.969 habitantes. Com uma área de 159.533,328 km², segundo o IBGE em 2017, posiciona-se como o município mais extenso do Brasil.

Até 2009 foi o maior município do mundo em extensão territorial, sendo maior que dez estados brasileiros, além do Distrito Federal e vários países como Portugal, Islândia, Irlanda, Suíça, entre outros: Altamira (800 km), Marabá (510 km), Itaituba (500 km) e Santarém (570 km).Além disso, característica notória do município é sua hidrografia: Altamira está cravada às margens do rio Xingu, com sua série de afluentes e cachoeiras que se distribuem por toda a região.

Atualmente, 93,67% dos educandos do campo do município de Altamira/Pará, distribuídos entre todos os polos, dependem de transporte escolar para frequentarem as escolas locais, seja por via terrestre ou aquaviária.

A logística de transporte escolar de Altamira-PA disponibiliza um total de 75 veículos para deslocamento dos alunos do campo, divididos em 29 ônibus, 23 picapes, 10 kombis e 13 caminhões pau de arara. Além desses, somam-se 68 embarcações, sendo 25 voadeiras, 30 barcos de médio porte e 13 lanchas modelo MEC.

Um total de 156 professores com formação superior inicial, seguindo a Matriz Curricular Urbana, atendem os 6 polos educacionais camponeses. Esses polos dividem-se entre: Sol Nascente; Nova vida; Itapuama; Princesa do Xingu; Capembas; Espelho e Michila.

Destes, apenas 3 polos educacionais atuam em modalidade Regular de Ensino, sendo o de Sol Nascente, Itapuama e Nova vida. Os outros 4 polos, Princesa do Xingu, Capembas, Espelho e Michila, atuam apenas em sistema modular, conforme a Tabela 1 demonstrativa.

Uma das limitações para a população desta região começar a se integrar ao mundo global e tecnológico, pode-se observar ao avaliar a infraestrutura das escolas da região, conforme tabela abaixo.

Tabela 2 – Modalidade de Ensino dos Polos do Assentamento Rural PA/ASSURINI em Altamira/PA

Polo	**Modelo de Ensino**	
	Regular de Ensino	**Modular de Ensino**
Sol Nascente	Sim	-
Nova Vida	Sim	-
Itapuama	Sim	-
Princesa do Xingu	-	Sim
Capembas	-	Sim
Espelho	-	Sim
Michila	-	Sim
Total	3	4

Fonte: Elaboração dos autores, 2022.

Na Tabela 1, sobre a infraestrutura dos polos, destacamos que apenas 4 destas que compõem a rede de ensino segue o padrão indicado pelo MEC (Ministério de Educação), outras 3 ainda constituem de instalações provisórias, discordantes e ainda distante do que é exigido pela legislação brasileira que garante educação de qualidade de modo equânime para a sociedade brasileira.

Tabela 3 – Infraestrutura dos Polos Educacionais do Assentamento Rural PA/ASSURINI em Altamira/PA

Polo	**Infraestrutura**	
	Padrão MEC	**Provisória**
Sol Nascente	**Sim**	**-**
Nova Vida	**Sim**	**-**
Itapuama	**Sim**	**-**
Princesa do Xingu	**-**	**Sim**
Capembas	**-**	**Sim**
Espelho	**-**	**Sim**
Michila	**Sim**	**-**
Total	**4**	**3**

Fonte: Elaboração dos autores, 2022.

Outra característica específica da educação nesta realidade é que os polos abarcam escolas anexas para atender a comunidades escolares do município de Altamira/Pará, visto que seus estudantes se originam de localidades distantes daquele lugar onde está inserida a escola, compartilhando com uma comunidade mais abrangente a infraestrutura e o funcionamento destas dependências.

Conforme os achados da Tabela 3, o Polo Sol Nascente, o Polo Nova Vida, o Polo Itapuama e o Polo Espelho possuem um total de 10 escolas exclusivamente dedicadas ao atendimento de ribeirinhos, fazendo destes polos locais de elevada importância para a disseminação do conhecimento para a concentração de ferramentas tecnológicas de acesso ao mundo virtual ainda escassos para muitas comunidades isoladas pela distância territorial e ou aquática, uma vez que das escolas que compõem os polos, tal como se pode verificar na Tabela 3, das 32 escolas registradas, 14 destas são ribeirinhas. Assim, o problema ainda se agrava porque além deste município ter uma grande extensão territorial, as distâncias ainda mais se alargam se levamos em consideração a interposição das águas do rio.

Tabela 4 – Distribuição das escolas dos Polos Educacionais do Assentamento Rural PA/ASSURINI em Altamira/PA

Polo	**Distribuição de Escolas**	
	Escolas Tradicionais	**Escolas Ribeirinhas**
Sol Nascente	9	4
Nova Vida	4	2
Itapuama	4	4
Princesa do Xingu	5	0
Campembas	3	0
Espelho	4	4
Michila	3	0
Total	**32**	**14**

Fonte: Elaboração dos autores, 2022.

No que diz respeito ao número de alunos atendidos pela rede de ensino da Educação do Campo de Altamira/PA, constatou-se a partir da Tabela 4 que são atendidos um total de 2.246 educandos, compatibilizando alunos de escolas tradicionais e ribeirinhas, entre Anos Iniciais, Fundamental, Médio e EJA.

Tabela 5– Distribuição das escolas dos Polos Educacionais do Assentamento Rural PA/ASSURINI em Altamira/PA

Polo	**Graduação**			
	Jardim I e II	**1º ao 9º Ano**	**1º Ano/médio ao 3º ano/médio**	**EJA**
Sol Nascente	47	417	59	0
Nova Vida	0	409	0	0
Itapuama	0	270	0	0
Princesa do Xingu	0	294	0	0
Campembas	0	211	0	0
Espelho	0	254	0	0
Michila	44	232	0	9
Total	**91**	**2.087**	**59**	**9**

Fonte: Elaboração dos autores, 2022.

No que diz respeito especificamente a disponibilidade de acesso a recursos da informação e comunicação, somente o Polo Michila disponibiliza laboratório de informática com acesso à Internet e laboratório de ciências. Cabe aos demais professores atuantes nos demais polos da rede utilizarem como recurso de ensino documentos norteados sob suas próprias atividades ou livros didáticos, conforme Figuras 2 (A).

Fonte: Do arquivo do autor

Fig.2 – Material didático utilizado no Polo Sol Nascente (A)

Dados ainda mais alarmantes são observados acerca das tecnologias: 90% dos professores não usam ferramentas tecnológicas, os demais 10% usam no máximo televisor e de forma esporádica.

Acerca da oferta de formação continuada e qualificação sobre o uso de Tecnologias e Metodologias Ativas, não há registro na rede municipal de ensino sobre projetos com esse fito para a educação camponesa, embora. 65% dos professores possuem pós-Graduação e 71,25% possuem cursos de aperfeiçoamento nas áreas que atuam. De fato, o que agrava a situação é que nenhuma destas formações estavam voltadas especificamente ao emprego de tecnologias e metodologias ativas de aprendizagem, distanciando ainda mais a possibilidade de os alunos desta região acessar o conhecimento e traduzi-los em práticas que venham melhorar a sua qualidade de vida.

Quadro 2 – Análise da situação logística-pedagógica do Polo Sol Nascente em Altamira/PA

DESCRIÇÃO	SITUAÇÃO
Internet.	A internet é de péssima qualidade e no momento não atende à demanda dos professores e alunos, somente o setor administrativo e gestão
Formação continuada, pautadas em uso de tecnologias.	No ano de 2021 e 2022 até o mês de novembro não foi realizado nenhuma formação nessa temática
Currículo ou matriz curricular.	Não existe uma matriz específica para o campo. A escola utiliza a matriz da zona urbana de Altamira e em alguns casos os professores usam o livro didático de ciências (Livro: INOVAR – Ciências da Natureza. autores (Sônia Lopes e Jorge Audino)
Que tipo de tecnologia os professores usam nas aulas de ciências.	As vezes a televisão (segundo relatado pelos professores isso é muito difícil, ou seja, praticamente não utilizam.)
O que os professores de ciências mais usam em suas aulas.	O livro didático e quadro.

Fonte: Dados da pesquisa, 2022.

A formação de professores deve propor caminhos ao utilizar as TICs como ferramenta pedagógica de forma cientifica, sendo prevista em projetos de formação tanto inicial como de formação continuada dando a essas profissionais opções de utilizar as tecnologias de informação e de comunicação da melhor maneira e opcional.

Utilizar as TICs como ferramentas pedagógicas fazem parte dos saberes necessários a profissão de professor. Pimenta (2007) [19] afirma a necessidade de ressignificar os processos formativos a partir da reconsideração dos saberes necessários à docência, neste caso que se questionam que saberes a faculdade e as redes por meio de suas formações iniciais tem produzido nos professores do campo para o enfrentamento das TICs como ferramenta pedagógica, uma vez que estamos presenciando uma realidade virtual no processo ensino aprendizagem na cidade e no campo.

Evidenciamos que na educação do campo o agravamento é ainda maior. Com isso é possível compreender o papel assumido pelo uso das tecnologias no campo educacional e que há uma necessidade de repensar a formação de professores que atuam na educação do campo para a utilização dessas ferramentas no fazer pedagógico desenvolvidos nesses contextos.

Ainda, mais especificamente, acerca do Polo Sol Nascente, o Quadro 1 expressa que as informações logísticas da unidade de ensino são insuficientes para garantirem o acesso à internet, comprometendo a realização de atividades quando há a necessidade de usá-la como ferramenta para acesso ao saber científico. Vale ressaltar que não se tem registro de formações em áreas de

tecnologias na rede municipal de educação do campo em Altamira, e principalmente no Polo Sol Nascente, nos últimos dois anos, assim como a matriz curricular não acompanha os avanços das TIC's e nas rotinas cotidianas. Assim o que se percebe é o uso predominante de recursos não-tecnológicos como quadro e livro didático, conforme as Figuras 3 (A) demonstra.

Fig.3 – Prática pedagógica em sala de aula no Polo Sol Nascente (A)

Fonte: Arquivo dos autores, 2022.

Pesquisas mostram que os alunos aprendem "[...] muito mais os conteúdos programáticos quando esses são desenvolvidos nas perspectivas das TICs." mais facilmente quando da sua ausência., neste caso, ao contrário do que se esperada da educação em tempos de uma sociedade da informação, o que se tem na prática é o uso exagerado do livro didático. A ciência ensinada nas escolas apresenta um aprendizado difícil, tendo como consequência o afastamento de qualquer aluno mais criativo do interesse pela pesquisa fundamentada [9] e fazendo das TICs uma alternativa bastante poderosa para o ensino, uma vez que através delas, o indivíduo tem a possibilidade de aprimorar sua capacidade de pensar e ampliar sua experiência com a própria realidade em que vive.

IV. CONCLUSÃO

As tecnologias são ferramentas fundamentais para a aproximação dos alunos com contexto global do conhecimento, imprescindíveis na construção dos saberes cotidianos acerca de múltiplas temáticas. Na Educação do Campo da Amazônia Paraense, as tecnologias deveriam integrar as estratégias para qualificar o ensino e o aprendizado, contribuindo para equiparar os sistemas produtivos dentro do âmbito da sustentabilidade social, ambiental e econômica.

As escolas do campo são espaços de integração, socialização e propagação do conhecimento global concomitantemente à preservação da cultura local. Por se tratar de um espaço democrático, a oferta de recursos materiais, humanos, tecnológicos e de intelectualização deveria ser irrenunciável.

Apesar disso, a realidade experimentada pelas comunidades que utilizam os serviços públicos de Educação do Campo de Altamira-PA é discordante das exigências legais brasileiras o que as tem afastado dos estímulos científicos sobre o emprego de tecnologias no ensino.

A maioria das escolas que são anexas aos polos de Educação do Campo do Município de Altamira não possuem infraestrutura adequada, tanto em termos de edificação em acordo com o padrão estabelecido pelo MEC quanto à disponibilidade de laboratórios de ciências e informática, fundamentais para que a Educação seja de qualidade.

Os polos apresentam dependência de transporte escolar, pois as condições de locomoção da comunidade para as escolas muitas vezes são precárias, o que abarca emergência de atenção das entidades governamentais para políticas de transporte escolar para os alunos do campo.

Em relação às discussões sobre competências e habilidades a serem desenvolvidas pelos professores para se tomarem profissionais intelectuais críticos e reflexivos, e não mero executores das técnicas de comunicação e de informação, é necessário que a formação inicial e continuada possibilite novos conhecimentos que contemplem as tecnologias. Ou seja, esse processo deve envolver o acesso às pedagogias institucionalizadas que, segundo Tardif (2002) [20], constitui os saberes dos professores e que interferem na sua atuação na utilização das TICs em suas propostas educativas.

Para além, pensamos que as tecnologias devem ser utilizadas na dimensão pedagógica, política, social e cultural, formando sujeitos críticos e mais participativos. Nasce dessa cultura a necessidade de integrar a escola ao ciberespaço, trazendo inquietações à escola do campo, ao professor referente às práticas, que devem ser mudadas e repensadas em relação a essa nova forma de interagir com o conhecimento.

A formação de professores do campo deve propor caminhos ao utilizar as TICs como ferramenta pedagógica de forma cientifica, sendo prevista em projetos de formação tanto inicial como de formação continuada dando a eles opções de utilizar as tecnologias de informação e de comunicação da melhor maneira possível para trabalhar com os novos paradigmas das tecnologias.

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The Impact of Environmental Changes and the Damage to the Structure of Beach Buildings in the Southeast Jazirah of Saparua Island, Central Maluku District

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Abstract— *The coastal border is a certain area along the coast that has important benefits for maintaining the sustainability of coastal functions. The criterion for a coastal boundary is land along the edge whose width is in accordance with the shape and physical condition of the beach, at least 100 m from the highest tide point towards the mainland. Shoreline change is a series of coastal processes caused by external factors (currents, waves, winds and tides) and internal (characteristics and types of sediments and the base layer where the sediments are located). Shoreline changes will refer to sedimentary activity and deposition, namely the deposition of rock material that has been transported by hydropower or wind that occurs on the coast. The purpose of this paper is to determine environmental changes to coastal damage in the Southeastern Peninsula of Saparua Island and to analyze the damage to coastal structures that occurred in the Southeastern Peninsula of Saparua Island. The entire coastal building that was damaged by abrasion was the seawall. The benchmark for damage to the coastal environment from settlements and public facilities is with a weight of 200% and priority. While the agricultural area is with a weight of 100 and is less prioritized. Evaluation of the damage assessment of the coast of the Southeastern Peninsula which consists of 4 villages, namely Ouw Village, Ulath Village, Siri Sori Islam Village, and Siri Sori Serani Village with an importance weight coefficient of 1.00. The review was carried out based on the damage to the building that occurred, namely from STA 00+500 (with a building condition index of 3.4; Needs repair), STA 00+1500 (with a building condition index of 4; Heavily Damaged), STA 00+2000 (with a building condition index 3; Needs Repair), STA 00+3200 (with a building condition index of 3; Needs Repair), and STA 00+3600 (with a building condition index of 4; Heavily Damaged).*

I. INTRODUCTION

Coastal protection or protection structures are a type of building in the field of Civil Engineering designed to protect and secure beaches from erosion/abrasion and coastal/rob flooding, maintain estuary stability to support navigation traffic, and revitalize coastal areas. Some coastal protection structures often suffer damage, both minor damage and major or severe damage. Apart from natural factors, the damage also occurs due to failure of the lower structure (settlement occurs) due to the building's own weight/structure, concrete quality, and structural stability. Besides the two types of damage to the protective structure above, structural damage can also occur due to design errors or building layout.

One of the environmental problems that exist in coastal areas is the change in coastline caused by abrasion. Abrasion is a process of eroding the beach by the destructive power of waves and ocean currents. That way, abrasion can threaten damage to aquaculture, rice fields, settlements and buildings bordering sea water. Coastal abrasion is one of the main problems in the Southeastern Peninsula on Saparua Island. The Southeastern Peninsula itself is located at the eastern tip of Saparua Island and consists of several countries/villages, including Siri Sori Serani Country, Siri Sori Islam Country, Ulath Country, and Ouw Country; as an example are some damaged seawall buildings.

Given the important role of coastal protection structures in the Southeastern Peninsula area, and very little study on the problem of damage to coastal protection structures in this area, it is necessary to carry out an inventory of existing coastal protection structures in the Southeastern Peninsula region, on the level of damage that occurs so that countermeasures can be carried out. .

Based on the description and problems above, the author tries to raise the research title Impact of Environmental Change and Damage to Beach Building Structures in the Southeastern Peninsula Region of Saparua Island, Central Maluku Regency.

II. LITERATURE REVIEWS

2.1. Beach

There are two coastal terms in Indonesian which are often confused in their use, namely the coast and the beach. An explanation of the beach can be seen in Figure 1.

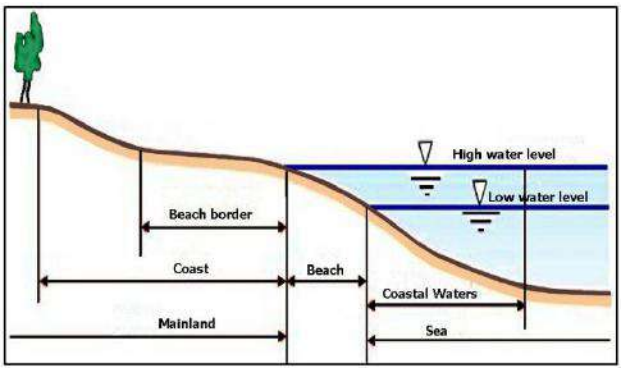

Fig 1. Coastal definitions and boundaries

coastis a land area on the edge of the sea that is still affected by the sea such as tides, sea breeze, and seepage of sea water. While the beach is an area on the water's edge that is affected by the highest tides and lowest tides.

Mainlandis the area located above and below the land surface starting from the highest tide line. The ocean is the area that lies above and below sea level starting from the sea side at the lowest ebb line, including the seabed and parts of the earth beneath it. The coastline is the boundary line between land and sea water, where the position is not fixed and can move according to the tides and beach erosion that occurs.

The coastal border is a certain area along the coast that has important benefits for maintaining the sustainability of coastal functions. The criterion for a coastal boundary is land along the edge whose width is in accordance with the shape and physical condition of the beach, at least 100 m from the highest tide point towards the mainland.

Shoreline change is a series of coastal processes caused by external factors (currents, waves, winds and tides) and internal (characteristics and types of sediments and the base layer where the sediments are located). Changes in the shoreline will refer to sediment activity and deposition, namely the deposition of rock material that has been transported by hydropower or wind that occurs on the beach (Triatmojo, Bambang. 1999. Coastal Engineering. Yogyakarta: Beta Offset).

2.2. Beach Erosion

Coastal erosion is one of the problems in coastal areas that must get attention because coastal erosion can cause enormous losses by destroying residential areas and existing facilities in the area. To tackle coastal erosion, the cause must first be sought, so a solution can be found. One solution to erosion is to build coastal protection structures, these buildings are used to protect the coast from waves and currents.

2.3. Factors Causing Beach Erosion

According to the Coastal Protection Structure, coastal erosion can occur for various reasons, in general the causes of erosion can be grouped into two things, namely natural causes and man-made causes (caused by humans). (Pratikto, WA et al. 1996. Planning for Beach and Sea Facilities).

1. Natural causes of coastal erosion include:
   a. Rising sea level
   b. Changes in sediment supply
   c. Storm Wave
   d. Overwash
   e. Longshore transportation
   f. Transport by wind
2. The artificial causes of coastal erosion include:
   a. Land subsidence
   b. Sand digging
   c. Interruption of longshore transport
   d. Reduced sediment supply towards the coast
   e. The concentration of wave energy on the beach

2.4. Coast Guard Building

The types of coastal protection structures managed by the Ministry of Public Works consist of:

a. Revetmen
b. Seawall
c. Breakwater
d. groins
e. Jetty
f. Sea Wall
g. Sand Filling

2.5. Beach Damage

There are three types of coastal damage criteria, namely: coastal environmental damage criteria, erosion and building damage criteria and sedimentation criteria. (Ministry of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Prioritization of Handling.)

a. Criteria for damage to the coastal environment

The criteria for coastal environmental damage used in this guide cover the types of coastal damage caused by the following:

1). Settlements and public facilities that are too close to the coastline.
2). The agricultural area is too close to the shoreline.
3). Sand mining in coastal areas/sand dunes.
4). Environmental pollution in coastal waters.
5). Sea water intrusion.
6). Logging of mangrove forests/plants to make ponds.
7). Taking/destroying coral reefs.
8). Flood due to tidal rob.

b. Criteria for erosion/abrasion and damage to buildings

The criteria for erosion and abrasion referred to here are erosion/abrasion that occurs due to natural factors or as a result of human activities. Some of the causal factors that often result in beach erosion/abrasion include:

- human factor

1). The influence of the presence of coastal buildings jutting into the sea.
2). Mining of beach and river materials.
3). Pollution of coastal waters that can kill corals and mangroves.
4). The influence of the water structure in the river, which has a tendency to cause an imbalance in sediment transport.
5). Coastal cultivation
6). Excessive groundwater withdrawal

- Natural factors : Destruction by natural disasters such as storm surges, tsunamis and earthquakes.

c. Sedimentation criteria

The sedimentation criteria referred to here are sedimentation that causes estuary flooding or disturbance to shipping that utilizes river mouths. There are two types of sedimentation problems in estuaries, namely closure and siltation of estuaries.

- Closing of river mouths occurs right at the mouth of river mouths on sandy or muddy beaches which can result in the formation of sills (bars) or sand spit (sand spit) in the estuary.
- The process of siltation of river mouths is caused by the deposition of sediments, especially those from the upper reaches of the river. This can happen because the river flow is not able to transport the sediment to the sea.

2.6. Coastal Damage Assessment Process

To assess coastal damage and determine priorities for handling, the following steps are used. (Ministry of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Prioritization of Handling.)

a. Preparation
b. Assessed beach location
c. Location Description
d. Coastal Damage Assessment
e. Description of Coastal Damage
f. Coastal Damage Rating
g. Determination of Interest Level
h. Treatment Priority
i. Handling Priority Sequence

2.7. Benchmark of Coastal Damage

In assessing coastal damage, there are 3 (three) approaches used, namely:

1. damage to the coastal environment,
2. Erosion or abrasion, and damage to buildings, as well
3. Problems that arise due to sedimentation.

In assessing environmental damage, environmental damage caused by:

a. The existence of settlements and public facilities that are too close to the coastline, so that these settlements/facilities are easily reached by the waves.
b. Agricultural areas (rice fields, plantations and aquaculture) that are too close to the shoreline so that the agricultural areas are easily reached by the waves.
c. The existence of sand mining in coastal areas can have an impact on the loss of natural protection of coastal areas.
d. Pollution of coastal waters.
e. Seawater intrusion into groundwater or rivers can disrupt sources of clean water (drinking water) for coastal communities and industries.
f. Logging of mangrove forests in coastal areas can have an impact on the loss of natural protection of coastal areas.
g. Mining or damage to coral reefs in coastal areas can have an impact on the loss of natural protection of coastal areas.
h. Sea level rise (sea level rise) and land subsidence which can cause tidal flooding.

2.8. Benchmark for Coastal Environmental Damage

a. Settlements and public facilities

Settlements and public facilities that are too close to the coast (located in the coastal area) will cause buildings to be hit by waves so that buildings can be damaged and disrupt community activities.

The following is a benchmark for coastal damage for settlements (the area under review is one hamlet).

Light :1 house to 5 houses are on the beach, not reached by storm waves.

Currently :6 to 10 houses are on the beach, not accessible

storm surge.

Heavy :1 house to 5 houses are on the beach border in storm surge range.

Very Heavy :6 to 10 houses are on the beach within reach of the storm surge.

Very Very Severe: >10 houses are on the beach within reach of the storm surge.

Meanwhile, when viewed from the size of the general facility, the benchmarks for damage are:

1). Small, equivalent to 1 house to 5 houses, local service area.
2). Medium, equivalent to 6 houses to 10 houses, medium scale service areas.
3). Large, equivalent to > 10 houses, wide service area.

b. Agricultural area (plantations, rice fields and aquaculture)

Agricultural areas that are too close to the coast (located in the coastal border area) can be threatened due to wave overtopping. The benchmarks for assessing damage to the coastal environment due to the location of agricultural areas are their presence on the coastal border and the vulnerability of the coast to erosion.

The following are benchmarks for assessing coastal damage for agricultural areas:

Light :The agricultural area is on a beach that is not easily eroded, a location of 0 m to 100 m.

Currently :The agricultural area is on a beach that is easily eroded, a location of 0 m to 100 m.

Heavy :The agricultural area suffered minor damage due to the waves.

Very Heavy :Agricultural areas suffered moderate damage due to the waves.

Very Very Heavy: AreaAgriculture suffered heavy damage due to the waves.

c. Sand dune area

The benchmark for damage to the coastal environment due to sand mining in coastal areas is the location of the sand mining location relative to the coastline and the equipment used for mining. The following is a benchmark for coastal damage for sand mining in coastal areas.

Light :The mining location is at a distance of 200 m to 500 m from the coastline, carried out by heavy equipment (mechanical).

Currently : Locationmining at a distance of 100 m to 200 m from the shoreline, is done with traditional tools.

Heavy : Mining locationat a distance of 100 m to 200 m from the shoreline, carried out with heavy equipment (mechanics).

Very Heavy : Pen locationthreshold at a distance of less than 100 m ofcoastline, with traditional tools.

Very Very Heavy:Mining location at a distance of less than 100 m from the shoreline, with heavy equipment (mechanical).

d. Coastal waters

The benchmark for assessing damage to the coastal environment due to urban waste and oil pollution is seen from the level of waste content indicated by the color, waste content and odor of the waste. The following is a benchmark for assessing coastal damage for environmental pollution of coastal waters:

Light :Beach waters look cloudy, a little trash, and no smell.

Currently : Waters visible cloudy,medium waste/oil content, and odorless.

Heavy :Waters beach which looks brown, contains waste / oil currently, and smell but not yet disturbing.

Very Heavy :The coastal waters look black, the trash/oil content is moderate and smellquite annoying.

Very Very Heavy : The coastal waters look pitch black, lots of trash/oil and has a strong odor.

e. Groundwater

The benchmark for assessing damage to the coastal environment due to seawater intrusion into groundwater is the amount of salt content in community wells and sources of raw water outside the coastal border. How to determine the salt content contained in well water is carried out in accordance with SNI 06-2412-1991, concerning the method of taking samples for testing water quality. The following are benchmarks for assessing coastal damage for seawater intrusion:

Light :Salt content of 0.5 g/l to 2.5 g/l was detected in 1 well to 5 wells.

Currently :Salt content of 0.5 g/l to 2.5 g/l was detected in 6 or more wells.

Heavy :Salt content of 2.5 g/l to 5 g/l was detected in 1 well up to 5 wells.

Very Heavy :Salt content of 2.5 g/l to 5 g/l was detected in 6 or more wells.

Very Very Severe: Salinity > 5 g/l detected in 6 or more wells.

f. Mangrove forest (plant).

The benchmark for assessing coastal environmental damage due to logging is the thickness and density of the remaining mangrove forest. The following is a benchmark for assessing coastal damage for mangrove forests:

Light :The thickness of the mangrove forest (plants) is still 30 m to 50 m with sparse plant conditions.

Currently :The thickness of the mangrove forest (plants) is 10 m to 30 m, the condition of the plants is dense.

Heavy :The thickness of the mangrove forest (plants) is 10 m to 30 m, the condition of the plants is rare.

Very Heavy :The thickness of the mangrove forest (plants) is <10 m, the condition of the plants is dense.

Very Very Severe: The thickness of the mangrove forest (plants) is <10 m, the condition of the plants is sparse.

g. Coral reefs

The benchmark for assessing damage to the coastal environment due to damage to coral reefs is the area of coral reefs damaged by mining. The following are benchmarks for assessing coastal damage for coral reefs:

Light :Damage due to mining under 10% of the area.

Currently :Damage due to miningrange between 10% untilwith 20% widearea.

Heavy :Damage from mining ranges from 20%until with30% area.

Very Heavy :Damage consequenceMining ranges from 30%up to you 40% area.

Very Very Heavy : Damage > 40% area.

h. Rob - coastal area

The benchmarks for assessing damage to the coastal environment due to rob are the height of the inundation and the area of the inundated area. The following is a benchmark for coastal damage assessment for coastal area rob:

Light : The local drainage canal is full when it occursrob.

Currently :Local drainage channels overflow in certain places when a rob occurs.

Heavy :The height of inundation on the road is between 0 cm and 20 cm on a moderate

scale (at least one lane of the main road is inundated).

Very Heavy :The height of the inundation on the road is between 0 cm and 20 cm on a broad scale (at least two main road lanes are inundated).

Very Very Heavy: Inundated height > 20 cm on a broad scale.

2.9. Building Damage

The benchmark for assessing coastal damage due to scouring and building damage can be seen from the appearance of the building itself such as building collapse, building abrasion, building tilt, and building function. The following is a benchmark assessment of coastal damage for scour and damage to buildings. (Ministry of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Prioritization of Handling.)

Light :The building can still function properly above 75%

Currently : Building Still working 50% up to 75%.

Heavy : The building functions only 25% to 50% but does not endanger the environment.

Very Heavy : Building only function 25% left to function 50% And harm the environment.

Very Very Severe : The building is badly damaged and andangers the environment

2.10. Benchmark of Coastal Interests

The importance level weighting is presented in a table in the form of importance level weighting coefficients, as shown in Table 1. (Ministry of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Priority for Handling it.)

Table. 1.Coefficient Interest Level Weight

No.		Importance scale	Weight coefficient importance level (f)
1	World heritage conservation (such as Tanah Lot temple)	International	2.0
2	Tourism that brings in foreign exchange, places of worship, places of business, industry, defense and security facilities, urban areas, state roads, airports, ports, outer islands	State Interests	1.75
3	Domestic tourism, places of worship, places of business, industry, defense and security facilities, urban areas, provincial roads, airports, seaports	Provincial interests	1.50
4	Domestic tourism, places of worship, places of business, industry, defense and security facilities, urban areas, county roads, airports, ports	Regency/City Interests	1.25
5	Settlements, village markets, village roads, places of worship	Local interests are related to residents and activities economy	1.00
6	Agricultural land (plantations, rice fields and aquaculture) of the people	Interest locally related to agriculture	0.75
7	Land is not utilized and has no economic impact	There is no particular interest and no impact	0.50

Source: Appendix to Circular of the Minister of Public Works NO 8/SE/M/201

2.11. Weighting and Prioritization Procedures

a. Weighting procedure

The weighting of the level of coastal damage is carried out on a scale of 50 to 250 with details as shown in the Minister of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Prioritization of Handling.

Table. 2.Coastal damage level weight scale

No.	Damage rate	Damage type		
		Environment	Erosion/abrasion and building damage	Sedimentation
1	Light (R)	50	50	50
2	Medium (S)	100	100	100
3	Weight (B)	150	150	150
4	Very Heavy (AB)	200	200	200
5	Very Very Severe (ASB)	250	250	250

Source: Appendix to Circular of the Minister of Public Works NO 8/SE/M/2010

The following is a coastal damage assessment procedure:

1. Coastal damage assessment is carried out at the location (area) of the damage.
2. Damage assessment at one location is carried out separately from other locations. If several types of damage occur in one location, the assessment is carried out on the heaviest coastal damage cases that occurred at that location.
3. Especially for environmental damage assessment, it must be done very carefully, especially related to the existence of buildings or facilities on the beach, because people's perceptions are very diverse (for example: places of worship are on the beach, hotels are on the beach, recreational locations are on the beach).
4. Assessment of damage to a fairly large coastal area can be carried out by dividing the area into several locations as needed.

b. Determination of priority order

Based on data from field observations and sensitivity analysis, the priorities for beach management can be grouped into: (Ministry of Public Works Circular Letter 08, 2010. Assessment of Coastal Damage and Prioritization of Handling.)

Priority A : Weight > 300 (highly preferred - emergency)

Priority B : Weight 226 to 300 (highly preferred)

Priority C :Weights 151 to 225(preferred)

Priority D : Weight 75 to 150 (less preferred)

Priority E : Weight < 75 (not preferred)

III. METHODOLOGY

3.1. Location / Research Object

The research was carried out at the Southeast Jazirah Coastal Location, East Saparua District, Central Maluku Regency, calculated from the Initial Coordinates: 3º35'13"S 128º41'37"E to the Final Coordinates: 3º36'27"S 128º43'10"E.

Fig 2. Research sites

3.2. Research variable

The research variable is an attribute of a group of objects that have variations from one object to another. The research variables in this study consisted of two kinds. The first variable is the independent variable which is given the notation X and the second variable is the dependent variable which is given the notation Y.

The independent variable (X) determines changes in the dependent variable (Y), but regardless of the influence of the dependent variable. While the dependent variable (Y) is a variable that is influenced by the independent variable (X). In this study it was determined that the independent variable (X) was changes in the coastal environment and coastal damage, and the dependent variable (Y) was damage to coastal structures.

$\int (Y) = X1 + X2 + \cdots + Xn$

Where :

Y = Damage to coastal buildings

$X1$ = Changes in the coastal environment

$X2$ = Coastal damage

3.3. Types and Sources of Research Data

There are two data used in this study, namely:

1. Primary data, namely through field surveys in the form of shoreline coordinates and measurements of damage to coastal building structures, as well as photo documentation.
2. Secondary data is in the form of location maps and topographic maps.

3.4. Flowchart

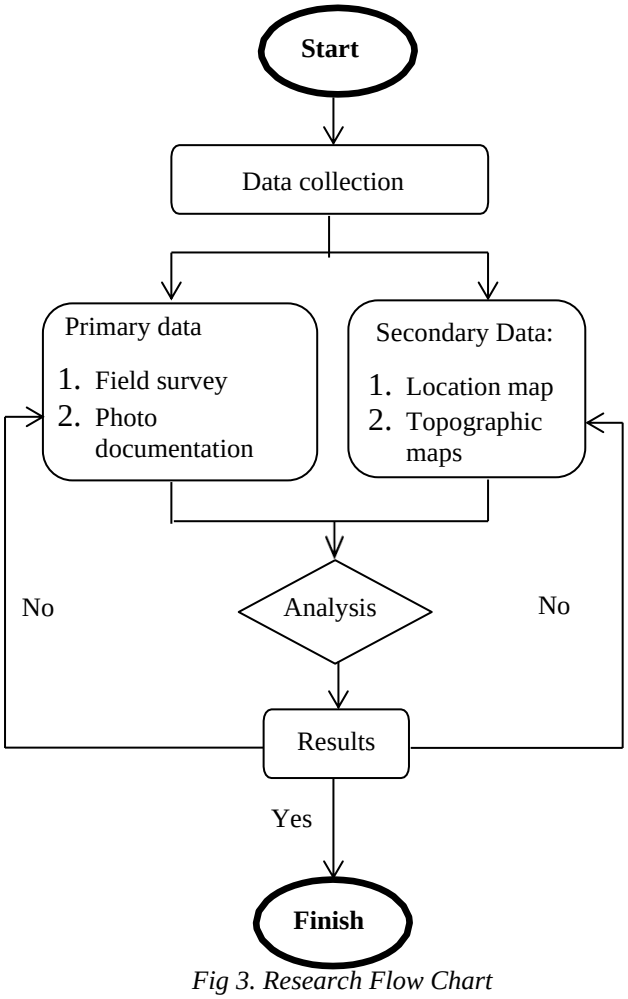

Fig 3. Research Flow Chart

IV. ANALYSIS AND DISCUSSION

4.1. Benchmark for Coastal Environmental Damage

1. Settlements and public facilities

Table. 3. Settlements and public facilities

No	Sketches & Photos	Damage Description	Weight	Priority
1.		6 to 10 houses are on the beach within reach of the storm surge	200	C (Preferred)

Source: Processed Products According to Appendix NO 8/SE/M/2010

2. Agricultural area

Table. 4. Agricultural Area

No	Sketches & Photos	Damage Description	Weight	Priority
1.		The agricultural area is on a beach that is easily eroded, a location of 0 m to 100 m	100	D (Less preferred)
2.		The agricultural area is on a beach that is easily eroded, a location of 0 m to 100 m	100	D (Less preferred)

4.2. Damage to the Coast Guard Building`

Table. 5. Damage to coastal protection structures

No	Sketches & Photos	Damage Description	Weight	Priority
1.	 	The building is still functioning 50% until with 75%.	100	D (Less preferred)
2.	 	Buildingdamaged and harmful to the environment.	250	B (Highly preferred)

3		The building functions only 25% to 50% but does not endanger the environment.	150	D (Less preferred)
4		The building is still functioning 50% until with 75%.	100	D (Less preferred)
5		Buildings only function 25% to 50% and are harmful to the environment.	200	C (Preferred)

Source: Processed Products According to Appendix NO 8/SE/M/2010

4.3. Coastal Damage Assessment Evaluation

Table. 6.Evaluation Assessment of damage to the coast of the Southeastern Peninsula

Location	Damage rate												Level Weight Coefficient Interest
	Environment									Erosion/abrasion and building damage		Sedimentation	
	L1	L2	L3	L4	L5	L6	L7	L8	EA1	EA2	SP1	SP2	
Ouw Village Beach	-	-	-	-	-	-	-	-	-	100	-	-	1.00
Ulath Village Beach	-	-	-	-	-	-	-	-	-	-	-	-	-
Islamic Siri-Sori Village Beach	200	100	-	-	-	-	-	-	-	250	-	-	1.00
Siri Sori Village Beach Serani	-	100	-	-	-	-	-	-	-	200	-	-	1.00

Source: Processed Products According to Appendix NO 8/SE/M/2010

Information :

L1 :Damage to settlements and public facilities

L2 :Damage to agricultural areas

L3 :Damage to coastal areas due to sand mining

L4 :Decreased quality of coastal waters due to pollution

L5 :Deterioration of groundwater quality due to seawater intrusion

L6 : The decline in the quality of mangrove forests

L7 : The decline in the quality of coral reefs

L8 : Rob on the coast

EA1 : Shoreline change

EA2 : Scouring and damage to buildings

SP1 :Sedimentation of river mouths, estuaries are not for shipping

SP2 :Sedimentation of river mouths, estuaries for shipping

4.4. Evaluation of Coastal Buildings

Building Type : Sea wall

ID :TL JT

Location : Central Maluku Regency
Maluku Province

Monitoring Officer : Maiyaji Saimima

Watch Date : September 18, 2019

1. Seawall STA 00+500

➢ Physical Code

Physical Condition of the Building Seawall						
Peak	Body		foundation		Material	
	Outside	In	Outside	In	Armor	Concrete/ Wall
1	4		4			4
Physical Component Index (Fill according to assessment	**4** *(Average value)*		**4** *(Average value)*		**4** *(Average value)*	
Physical Component Weights	A **20**	B **10**	C **30**	D **40**		
Component	**20**	**40**	**120**	**160**		

Component Value = Physical component index x physical component weight

Condition Index	**3,4**
Building	**Need Improvement**

Component Value = S (component value) / S (component weight)

➢ Function Performance

Based on observations of notes, sketches, and photographs related to beach conditions around buildings and protected objects, it is concluded that the results of building evaluations show the performance of building functions (Good/Poor):

Building Function Performance	Good

➢ Conclusion

Building	Seawall	**ID**	TL JT
Action Suggestions	**Rehabilitation**		

2. Seawall STA 00+1500

➢ Physical Code

Physical Condition of the Building Seawall						
Peak	Body		foundation		Material	
	Outside	In	Outside	In	Armor	Concrete/ Wall
4	4		4			4
Physical Component Index (Fill according to assessment	**4** *(Average value)*		**4** *(Average value)*		**4** *(Average value)*	
Physical Component Weights	A **20**	B **10**	C **30**	D **40**		
Component	**80**	**40**	**120**	**160**		

Component Value = Physical component index x physical component weight

Condition Index Building	**4**
	Heavily Damaged

Component Value = S (component value) / S (component weight)

➢ Function Performance

Based on observations of notes, sketches, and photographs related to beach conditions around buildings and protected objects, it is concluded that the results of building evaluations show the performance of building functions (Good/Poor):

Building Function Performance	Good

➢ Conclusion

Building	Seawall	**ID**	TL JT
Action Suggestions	**Rehabilitation**		

3. Seawall STA 00+2000

➢ Physical Code

Physical Condition of the Building Seawall						
Peak	Body		foundation		Material	
	Outside	In	Outside	In	Armor	Concrete/ Wall
Physical Component Index (Fill according to assessment	4		4			3
1	**4** *(Average value)*		**4** *(Average value)*		**3** *(Average value)*	
Physical Component Weights	A **20**		B **10**		C **30**	D **40**
Component	**80**		**40**		**120**	**120**

Component Value = Physical component index x physical component weight

Condition Index	**3**
Building	**Need Improvement**

Component Value = S (component value) / S (component weight)

➢ Function Performance

Based on observations of notes, sketches, and photographs related to beach conditions around buildings and protected objects, it is concluded that the results of building evaluations show the performance of building functions (Good/Poor):

Building Function Performance	Good

➢ Conclusion

Building	Seawall	**ID**	TL JT
Action Suggestions	**Rehabilitation**		

4. Seawall STA 00+3200

➢ Physical Code

Physical Condition of the BuildingSeawall						
Peak	Body		foundation		Material	
	Outside	In	Outside	In	Armor	Concrete/ Wall
Physical Component Index (Fill according to assessment	2		4			3
2	**2** *(Average value)*		**4** *(Average value)*		**3** *(Average value)*	
Physical Component Weights	A **20**		B **10**		C **30**	D **40**
Component	**40**		**20**		**120**	**120**

Component Value = Physical component index x physical component weight

Condition Index	**3**
Building	**Need Improvement**

Component Value = S (component value) / S (component weight)

➢ Function Performance

Based on observations of notes, sketches, and photographs related to beach conditions around buildings and protected objects, it is concluded that the results of building evaluations show the performance of building functions (Good/Poor):

Building Function Performance	Good

➢ Conclusion

Building	Seawall	**ID**	TL JT
Action Suggestions	**Rehabilitation**		

5. Seawall STA 00+3600

➢ Physical Code

	Physical Condition of the Building Seawall						
	Peak	Body		foundation		Material	
		Outside	In	Outside	In	Armor	Concrete/ Wall
		4		4			4
Physical Component Index (Fill according to assessment	4	4 *(Average value)*		4 *(Average value)*		4 *(Average value)*	
Physical Component Weights		A		B		C	D
		20		10		30	40
Component		80		40		120	160

Component Value = Physical component index x physical component weight

Condition Index	**4**
Building	**Heavily Damaged**

Component Value = S (component value) / S (component weight)

➢ Function Performance

Based on observations of notes, sketches, and photographs related to beach conditions around buildings and protected objects, it is concluded that the results of building evaluations show the performance of building functions (Good/Poor):

Building Function Performance	Good

➢ Conclusion

Building	Seawall	**ID**	TL JT
Action Suggestions	**Rehabilitation**		

V. CONCLUSION

The entire coastal building that was damaged by abrasion was the seawall. The benchmark for damage to the coastal environment from settlements and public facilities is with a weight of 200 and priority. While the agricultural area is with a weight of 100 and is less prioritized.

Evaluation of the damage assessment of the coast of the Southeastern Peninsula which consists of 4 villages, namely Ouw Village, Ulath Village, Siri Sori Islam Village, and Siri Sori Serani Village with an importance weight coefficient of 1.00. The review was carried out based on the damage to the building that occurred, namely from STA 00+500 (with a building condition index of 3.4; Needs repair), STA 00+1500 (with a building condition index of 4; Heavily Damaged), STA 00+2000 (with a building condition index 3; Needs Repair), STA 00+3200 (with a building condition index of 3; Needs Repair), and STA 00+3600 (with a building condition index of 4; Heavily Damaged). So the recommended action for damage to coastal protection structures in the Southeastern Peninsula of Saparua Island is rehabilitation with the required rehabilitation budget of Rp. 204,040,000,-.

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Synthesis and Evaluation of the Preliminary Stability of White Clays Containing Açaí (*Euterpe oleracea*) and Acerola (*Malpighia emarginata*) Powder for Topical use

Síntese e Avaliação da Estabilidade Preliminar de Argilas Brancas Contendo Pó de Açaí (*Euterpe oleracea*) e Acerola (*Malpighia emarginata*) Para uso Tópico

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***Keywords*— Quality control, Preliminary Stability, Phytocosmetics.**

***Palavras-chave*— Controle de Qualidade, Estabilidade Preliminar, Fitocosméticos.**

***Abstract*— *Clays are used in cosmetology because they have moisturizing, rejuvenating and antioxidant properties. Such characteristics are enhanced with the combination of actives, such as açaí powder, rich in antioxidant activities, and acerola powder, which has B complex vitamins, but its highest concentration is vitamin C, thus, the two actives minimize damage against free radicals, promoting an improvement in the appearance of the skin. The formulations were developed at three different concentrations, where they were stored in polyethylene pots and underwent preliminary stability tests, where they were subjected to six cycles of thermal stress, since, at the end of each cycle, control parameters were analyzed quality, such as organoleptic characteristics, such as color, odor and appearance, to assess instabilities in formulations. Thus, pH and density values were also determined. In addition, during the ice-thaw process, the samples remained unchanged in terms of initial color, however, the aspects showed evidence of instability, that is, they showed slight changes, that is, the movements of the dispersed active particles to the edges of the pots. In addition, the pH values ranged from 5.0 to 5.5, since it is the appropriate pH value for the skin, as it resembles the stratum corneum, which has a pH of 5.5. In the same follow-up, the results referring to density, showed a high coefficient of variation, but during the statistical analyses, the formulations remained stable, that is, they are suitable for the next test steps.*

Resumo*— *As argilas são utilizadas na cosmetologia por apresentarem propriedades hidratantes, rejuvenescedoras e antioxidantes. Tais características são potencializadas com a combinação de ativos, como o açaí em pó, rico em atividades antioxidantes, e a acerola em pó, que

possui vitaminas do complexo B, mas sua maior concentração é a vitamina C, assim, os dois ativos minimizam os danos causados pelos radicais livres, promovendo uma melhora na aparência da pele. As formulações foram desenvolvidas em três concentrações diferentes, onde foram armazenadas em potes de polietileno e passaram por testes preliminares de estabilidade, onde foram submetidas a seis ciclos de estresse térmico, pois ao final de cada ciclo foram analisados parâmetros de controle de qualidade, como características organolépticas, como cor, odor e aparência, para avaliar instabilidades em formulações. Assim, também foram determinados os valores de pH e densidade. Além disso, durante o processo de descongelamento, as amostras permaneceram inalteradas quanto à cor inicial, porém, os aspectos apresentaram indícios de instabilidade, ou seja, apresentaram pequenas alterações, ou seja, os movimentos das partículas ativas dispersas para as bordas dos potes. Além disso, os valores de pH variaram de 5,0 a 5,5, por ser o valor de pH adequado para a pele, pois se assemelha ao estrato córneo, que possui pH de 5,5. No mesmo acompanhamento, os resultados referentes à densidade, apresentaram alto coeficiente de variação, mas durante as análises estatísticas, as formulações permaneceram estáveis, ou seja, estão aptas para as próximas etapas do teste.

I. INTRODUÇÃO

As argilas são empregadas na cosmetologia por apresentarem propriedades hidratantes, rejuvenescedoras e antioxidantes. Tais funcionalidades deve-se a sua composição rica em minerais como Si, Al, Fe, Ti, Mg, Ca, K e Na [1,2,3].

A argila branca, por ser a mais suave, pode ser utilizada em peles sensíveis, pois não tem propriedades alergênicas. Desse modo, possuindo benefícios de regeneração, antissepsia, alta absorção da oleosidade e mantém o pH próximo da fisiologia da pele, demostrando aspectos interessantes para ser aplicada na estética facial **[**1,4,5].

O açaí (*Euterpe oleracea*), espécie nativa da Amazônia, amplamente conhecida por sua composição rica em antocianinas com atividade antioxidante [6]. Os antioxidantes são importantes para minimizar os danos feitos pelos radicais livres, além do mais, é uma propriedade bastante explorada no tratamento *anti-aging* [7].

A acerola (*Malpighia emarginata*) é uma espécie vegetal rica em vitaminas do complexo B, que auxiliam na renovação celular e na resistência natural da pele. No entanto, sua maior concentração é de vitamina C, que além de auxiliar na produção de colágeno e na elasticidade da pele, mantendo sua firmeza, bem como possui ação antioxidante [6]. É evidente que, na atual conjuntura da sociedade, a beleza sustentável vem ganhando um grande espaço na sociedade, visando o cuidado com o meio ambiente, existindo cada vez mais, consumidores interessados em produtos de origem natural, como a argila [8].

Tendo em vista que, ao desenvolver um cosmético, é imprescindível o estudo do produto, afim de garantir segurança e qualidade, estes estudos são necessários, bem como, analisar a estabilidade da formulação de acordo com os preceitos estabelecidos pela Agência Nacional de Vigilância Sanitária (ANVISA), analisando aspectos físico-químicos e organolépticos, por meio de guias de estabilidades, em que a partir dessas análises, haverá a possibilidade de obter informações sobre condições ambientais adequadas de armazenamento, oscilações de temperatura e vida útil do produto [9,10]. À vista disso, o presente estudo visa desenvolver um fitocosméticos usando argila branca contendo pós de açaí (*Euterpe oleracea)* e acerola (*Malpighia emarginata)* e realizar o estudo de estabilidade preliminar.

II. METODOLOGIA

2.1 Desenvolvimento da máscara de argila contendo pó de açaí (*Euterpe oleracea*) e acerola (*Malpighia emarginata*)

Foram produzidas três formulações F1, F2 e F3 (Tabela 1), as quais foram variáveis os percentuais dos pós dos ativos, acerola e açaí, segundo adaptação de Zangue (2007) [11]. As mesmas foram armazenadas em potes transparentes de plástico de polietileno com tampa rosca não hermeticamente fechada. As etapas do desenvolvimento e de estabilidade foram realizadas no laboratório de farmacotécnica da Universidade da Amazônia, Unidade Ananindeua e no laboratório de Pesquisa e Desenvolvimento de Farmacêutico e Cosmético da Universidade Federal do Pará, respectivamente.

Tabela.1: Desenvolvimento das formulações de máscara de argila com ativos de açaí (Euterpe oleracea) e acerola (Malpighia emarginata).

COMPONENTES	CONCENTRAÇÃO (%)		
	F1	F2	F3
Açaí em pó	2,5	1	4
Acerola em pó	2,5	4	1
Argila branca	35	35	35
Natrosol®	1,5	1,5	1,5
Glicerina	4	4	4
Propilenoglicol	4	4	4
Metilparabeno	0,1	0,1	0,1
Água destilada QSP	100	100	100

Fonte: Autores (2023).

2.2 Teste de estabilidade preliminar

Para a realização do teste de estabilidade preliminar, as amostras F1, F2 e F3, a seis ciclos de gelo-degelo. Para tal, foram escolhidas duas temperaturas, a primeira foi 45±2°C, na qual as amostras foram armazenadas em estufa (FANEN, Belém, Brasil) durante 24 horas, e a segunda foi a temperatura de 5±2°C sendo armazenado em geladeira (CONSUL, Belém, Brasil). A amostra controle permaneceu em temperatura ambiente (25°C) e ao abrigo da luz. Durante a análise, ao final de cada ciclo, foram realizados testes de controle de qualidade tais como avaliação das características organolépticas, pH e densidade, totalizando um período de análise de 12 dias consecutivos. E ao final do processo, os resultados foram avaliados por meio de análise estatística [9].

2.3 Testes de controle de qualidade

2.3.1 Análise das características organolépticas

A determinação das características organolépticas foi baseada na observação da cor, odor e aspecto, sendo possível inferir fenômenos de instabilidade, tais como: separação de fases, precipitação, oxidação, floculação, entre outros. Sendo estabelecidos as nomenclaturas N: normal, sem alteração; LM: levemente modificado conforme o Guia de Estabilidade de Produtos Cosméticos da ANVISA [9].

2.3.2 Determinação de pH

A avaliação do pH consistiu na utilização das fitas reativas de pH universais, mergulhando-as nas amostras, e após 60 segundos retirando-as para obterem os resultados do pH, que dispõe de cores tabeladas, onde valores menores que 7, se tornam ácidos, e maiores que o mesmo, básicos [12].

2.3.3 Determinação da densidade

A determinação da densidade de uns semissólidos, é empregado com o auxílio de um béquer, onde a densidade será calculada por massa (g) pelo volume (L). Dado por [9]:

$$d = \frac{M_2 - M_0}{M_1 - M_0}$$

Onde: d: densidade; M_0: massa do béquer vazio, em gramas; M_1: massa do béquer com a amostra, em gramas; M_2: massa do béquer com a amostra, em gramas;

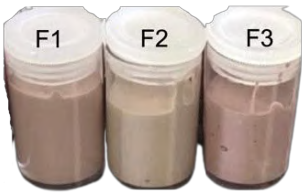
2.4 Análise estatística

Após a realização dos testes de controle de qualidade durante o teste de estabilidade acelerada, os resultados serão submetidos a análise de variância (ANOVA), na qual se aplica variáveis dependentes ou independentes para cada critério de estudo. Será obtido o valor de F para determinação do grau de dispersão entre os dados da análise e valor de P, para determinação da significância dos achados do estudo, e será utilizado grau de confiança de 95% e margem de erro de 5%, desta forma considerando valor de p=0,05 [13].

III. RESULTADOS E DISCUSSÃO

3.1 Desenvolvimento das formulações

Foram produzidas três formulações de máscara de argila, F1 com 2,5% de pó de açaí e 2,5% pó de acerola; F2 com 1% de pó de açaí e 4% pó de acerola; e F3 com 4% de pó de açaí e 1% pó de acerola (Figura 1). Dependendo da concentração dos ativos, houve uma variação da cor de bege a rosado, bem como, apresentaram aspecto denso semelhante a uma pasta, sem odor intenso.



Fonte: Autoras (2023).

Fig.1: Formulações F1, F2 e F3, respectivamente.

3.2 Teste de estabilidade preliminar

O objetivo de realizar o teste de estabilidade preliminar é avaliar as condições de armazenamento, escolha da embalagem, influência e compatibilidade das matérias-primas escolhidas em um curso período de tempo [14].

Vale ressaltar que o teste de estabilidade é uma etapa fundamental para o desenvolvimento de uma

formulação, para a avaliação da segurança dos cosméticos em relação laboratorial e piloto de fabricação [9].

3.3 Testes de controle de qualidade

3.3.1 Caracterização organolépticas

A coloração presente nas formulações, continham distinções em cada amostra, pois a quantidade de ativo empregada demonstrou estar diretamente ligada a coloração da formulação, sendo assim, observou-se a notoriedade do alto grau de pigmentação do pó de açaí em relação ao pó de acerola, na F1, visto que, apresentam concentrações equivalentes dos ativos, a coloração do pó de açaí prevaleceu, exercendo uma coloração rosado, já em amostras com teor menor de açaí e maior de acerola, como na F2, a coloração desenvolvida foi terrosa, demonstrando que a coloração do açaí não apresentou grande influência, quando em menor concentração, no entanto, na F3, quando em maior concentração, comparado com o outro ativo, demonstrou um grande grau de pigmentação, conferindo coloração levemente roxo, sendo está a coloração mais intensa diante das demais formulações desenvolvidas, conforme demonstra a Figura 1.

Ao decorrer do processo de gelo-degelo, as amostras permaneceram inalteradas (Tabela 2) quanto a sua coloração, com as mesmas tonalidades iniciais, bem como, Rosário *et al.* [15], que em seu estudo de emulsão, com óleo de babaçu, não detectou alterações nas suas colorações, mantendo por tanto, um branco brilhoso, mesmo que tenham sido submetidas a estresse térmico, assim sendo, atendendo os parâmetros de coloração estabelecidos pela ANVISA [9].

Tabela 2: Resultados das análises organolépticas das formulações.

Amostras	Ciclo 1			Ciclo 2			Ciclo 3			Ciclo 4			Ciclo 5			Ciclo 6		
	C	O	A	C	O	A	C	O	A	C	O	A	C	O	A	C	O	A
Controle	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N
F1	N	N	LM	N	N	N	N	N	LM	N	N	LM	N	N	N	N	N	LM
F2	N	N	LM	N	N	LM	N	N	LM	N	N	N	N	N	N	N	N	N
F3	N	N	LM	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Legenda: C: coloração; O: odor; A: Aspecto; N: normal, sem alteração; LM: levemente modificado. Classificação estabelecida em concordância com o Guia de estabilidade de cosméticos da Anvisa [9].

Em uma formulação, o aspecto visual agrega informações sobre a composição, evidenciando sinais de instabilidades, visto que, os fenômenos de mudanças podem causar modificações de consistência, aparência e performance da formulação, sendo assim, esse parâmetro é de grande valia na análise de amostras [16]. À vista disso, ao analisar os aspectos das formulações, ao decorrer do processo de estresse térmico, algumas amostras demonstraram leves modificações, indicando instabilidades física no decorrer das oscilações térmicas, apresentando mudança em seus aspectos, isto é, a movimentação das partículas dispersas com os ativos para cima, ocorrendo o acúmulo do pó de açaí nas margens, visto que, isso é decorrente da formação de gotículas de água que migram para a superfície [17]. Sendo assim, a desestabilização das amostras pode ter decorrido por fatores como incompatibilidade da formulação, submissão a temperaturas elevadas, não sendo bem aceita pelas formulações desenvolvidas [14], Diferindo, no entanto, de Correa *et al.* [18], que desenvolveu um pesquisa sobre óleo essencial de *Melaleuca* em um creme, que em suas análises de amostra, obteve-se resultados positivo, sem alterações e em normalidade com as diretrizes estabelecidas.

O odor das formulações, apresentava aroma característico de argila e dos ativos empregados, visto que, não houve adição de nenhuma essência, com intuito de garantir uma formulação mais natural, assim sendo, nas análises olfativas, após a submissão ao estresse térmico, as amostras não apresentaram desvio de odor, sendo um indicativo de que esse aspecto, está de acordo com as normas estabelecidas pelo Guia de estabilidade de cosméticos [9]. Assim como, Santos *et al.* [19] que em seus estudos de creme, contendo ácido ascórbico, apresentou aspectos positivos para essa característica olfativa.

3.3.2 Determinação de pH e densidade

Sabe-se que, para avaliar o controle de qualidade das máscaras de argilas, são necessárias as análises físico-químicas das amostras no final de cada ciclo. Nesse sentido, o pH é de grande valia para o estudo de pré-formulação, pois assim, possibilita saber informações da formulação e sua estabilidade[20].

Ademais, os valores de pH das formulações oscilaram em torno de 5,0 a 5,5, visto que, essa variação ocorreu formulação 2, em seu 2° ciclo de estresse térmico, possivelmente por reações químicas como hidrólise, impurezas, decomposição e/ou armazenamento inadequado [21]. Em síntese, os aspectos faciais são subdivididos em camadas, onde no estrato córneo apresenta um pH de 5,5, sendo ele, o primeiro a ser exposto a contato com produtos cosméticos. Desse modo, os analitos apresentaram pH adequado em concordância com o pH da face, e os dados obtidos, encontra-se dentro dos parâmetros do Guia de estabilidade de produtos cosméticos [10,22]. Embora, Freitas *et al.* [23], que em sua pesquisa sobre biohidrogéis, contendo emulsão de óleo de abacate, obteve pH entre 6,0 a 7,0, demonstrando estabilidade nas submissões de estresse térmico, resultados entre 4,5 a 7, demonstram efetividade e estabilidade para as formulações de uso tópico.

Além disso, no mesmo seguimento, os resultados obtidos referentes a densidade, variaram de concentração

em média 0,79 a 0,85 g/mL, como demonstrado na Tabela 3. Divergindo, desse modo, dos resultados obtidos de Ramos, Lima e Souza [24], no seu desenvolvimento e controle de qualidade, de um creme associado a óleo de *Vitis sp.*, que obteve em amostras com valores de densidade de 1,4g/mL, estando mais elevado que o dado estudo com argila.

Tabela 3: Dados de média, desvio padrão e coeficiente de variação, para determina ção de densidade das amostras.

AMOSTRA	MÉDIA	DP	C.V. (%)
F1	0,85	0,05	6,30
F2	0,80	0,05	6,79
F3	0,79	0,06	8,14

Legenda: DP: Desvio padrão; C.V.: Coeficiente de variação. Fonte: Autoras (2023).

A formulação argilosa, apresentou o valor do desvio padrão 0,05 a 0,06 e coeficiente de variação entre 6,3% a 8,1%, dessa maneira, não entrando em concordância com os parâmetros aceitáveis, tendo em vista que, a porcentagem deve estabelecer em um padrão abaixo de 5%, valores acima, apresentam indicativo de instabilidade na formulação [25]. Dessa forma, determinados aspectos podem ter influenciado na instabilidade da formulação, como incompatibilidade entre os ativos propostos, por não incorporar corretamente, fazendo com que haja um acumulo na superfície do recipiente e possuir densidade mais elevada, como também, o armazenamento inadequado, com tampas não hermeticamente fechadas, visto que isto também, está relacionado com fatores extrínsecos, fazendo com que facilite a umidade, formando a movimentação das partículas de água, deixando a formulação não homogênea [17,26].

3.4 Análise estatística

Conforme observado na Tabela 4, o valor de p 0,00578, ou seja, os valores da densidade não diferem, são estatisticamente iguais. Logo, isso é positivo, significando que apesar as variações dos ativos e das condições das temperaturas analisadas, as formulações se mantiveram estáveis [9].

Tabela 4: Análise da variância (ANOVA) um fator da densidade.

Origem de variação	d.f.	SS	MS	F	Valor-p	Crit. F
Entre grupos	2	0,02266	0,01133	3,35385	0,0578	3,55456
Dentro de grupos	18	0,0608	0,00338			
Total	20	0,08346				

Legenda: d.f: graus de liberdade; SS: soma dos quadrados; MS: quadrados médios; F: variância; Valor-p: valor de hipótese; Crit. F: valor de F crítico. Fonte: Autoras (2023).

IV. CONCLUSÃO

As formulações propostas mantiveram a estabilidade durante o ensaio realizado e conforme as especificações que a ANVISA recomenda. O que se sugere que elas se encontram aptas a passar pelas etapas a posteriori, que são teste de estabilidade acelerada e teste de prateleira, podendo ser acondicionada em embalagem de plástico com tampa rosca.

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The importance of nurses in improving the quality of life of hemodialysis patients

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***Keywords*— Chronic kidney disease, Quality of life, Nurse.**

***Abstract*—** *Chronic Kidney Disease is an important Public Health problem due to its high rates of morbidity and mortality, it is a disease characterized by the slow and continuous loss of kidney function, a fact that causes, among other changes, the progressive accumulation of toxins and metabolism waste in the blood. . Thus, with the intention of removing impure and toxic substances from the blood and excess water in the body, hemodialysis becomes the most assertive method, although there are some restrictions due to this therapeutic treatment, such as dietary changes in basic and social daily activities. Objective: It aims to analyze the aspects that influence the good quality of life of the hemodialysis patient, and describe the importance of nursing care to the patient on hemodialysis, as well as the particularities of the disease and the role of the nurse. Methodology: bibliographic review with search in books, magazines, articles, publications by agencies and institutions such as the Ministry of Health. The search for information was based on data available online found on platforms such as: Scielo and Google Scholar. Conclusion: It is in nursing that many patients find solace and motivation to continue with the treatment. It was identified that the nurse and the nursing team have a fundamental role in helping the patient to have an improvement in the quality of life, guiding the patient to live with his limits and accompanying the evolution of the treatment, focusing on acting in a preventive way to possible complications with patients before, during and after hemodialysis, in addition to helping with emotional and family issues.*

I. INTRODUCTION

Chronic renal failure (CRF) is a disease characterized by the slow and continuous loss of kidney function, a fact that causes, among other changes, the progressive accumulation of toxins and metabolic waste in the blood (DA SILVA FREITAS, et al, 2016). According to data from the Brazilian Society of Nephrology, the prevalence of chronic kidney disease in the world ranges from 28% to 46% in individuals over 64 years of age and 7.2% for individuals over 30 years of age. In Brazil, it is estimated that more than ten million people have the disease (ABREU, et al, 2019).

Initially, CRF may not manifest any signs or symptoms, in addition to varying greatly from one

individual to another, without the person knowing and being able to prevent or delay its progression (MORSCH, et al, 2011), the most frequent symptoms are: of urine production skin pallor, edema, hypertension, nausea, vomiting, lethargy, rates of altered laboratory tests, trauma, severe, sepsis, hypovolemia, exogenous intoxication (VASCONCELOS, et al, 2018). The diagnosis, according to the Ministry of Health, can be made through an imaging test, preferably an ultrasound of the kidneys and urinary tract, blood and urine analysis (EAS) to identify the presence of protein (albumin) in the urine, and the presence of another protein known as creatinine.

Hemodialysis is currently the most common dialysis treatment used to allow patients to survive the final stage of the disease (ARAÚJO et al, 2022). patient's life (VASCONCELOS, et al, 2018).

In this sense, the nurse has an indispensable role with regard to assistance interventions in patient care, as he is at the forefront of the execution and planning of such care (DA SILVA FREITAS, et al, 2016) The patient during treatment begins to have psychological, sexual, physical, family and social restrictions. Which consequently lead to the development of drug dependence, anxiety, depression, loss of function and kidney treatments, in addition to changes in diet, dryness of the oral mucosa and decreased sexual interest, sleep disorders, changes in appetite and weight, thus related to a low quality of life (ARAÚJO et al, 2022).

The nurse must be alert and sensitive to the weaknesses and emotions of patients, such as: denial, frustration, depression, among others. Given this, it is therefore up to the nurse to identify these changes and take them into account when planning educational actions that help to cope with the disease and favor adherence to treatment and improvement of the patient's quality of life (QoL) (DA SILVA FREITAS , et al, 2016).

In view of this, it is immensely important that the nurse is following the hemodialysis sessions, coordinating the team and identifying the specificities of each patient. This professional should also intervene in the interaction between the family and the patient about the disease and its complications, providing guidance on the therapeutic plan, with psychological and technical aspects (DE ANDRADE, et al, 2021).

This scientific work aims to analyze the aspects that influence the good quality of life of hemodialysis patients, and to describe the importance of nursing care to patients undergoing hemodialysis, as well as the particularities of the disease and the role of nurses.

II. THEORETICAL FRAMEWORK

Chronic Kidney Disease is an important Public Health problem due to its high rates of morbidity and mortality (COSTA et al, 2016). Kidney failure gradually and irreversibly leads the patient to adopt substitutive renal particularities (Kidney Transplantation and Dialysis, Hemodialysis), allowing the stability of these patients' lives. Thus, with the intention of removing impure and toxic substances from the blood and excess water in the body, hemodialysis becomes the most assertive method (DA SILVA et al, 2020).

However, there are some restrictions due to this therapeutic treatment, such as dietary changes in basic and social daily activities, the procedure is performed in hospitals or specialized units for 4 hours a day three times a week, which directly interferes with the quality of life of each individual. patient. (RIBEIRO et al, 2020). The survival of chronic renal patients is through a long-term vascular access, with arteriovenous fistulas as an initial option, through which the hemodialysis procedure is performed. (NEVES JUNIOR et al, 2020).

According to MADEIRO, Antônio Cláudio et al.2020 the:

> Studies have shown that individuals undergoing dialysis face losses and stressful changes in image and organic functions. As a result of these losses, many people undergoing dialysis become depressed and anxious. Nevertheless, most manage to adapt to dialysis or, at least, adhere to treatment (p 2).

The consequences in the daily life of a chronic renal patient due to the treatment also cause physical, sexual, psychological, family and social limitations that affect the quality of life (QoL) and require the participation of a multidisciplinary team to contribute to this process of adaptation of the patient for their well-being (RIBEIRO et al, 2020). In addition, among the variables chronic diseases, chronic renal failure, as it is incurable, has been highlighted as a progressive pathology with rapid clinical evolution, causing different reactions to patients and thus affecting the quality of life(COSTA et al, 2016).

In view of this, the role of nurses in improving the quality of life of hemolytic patients is extremely important, and with the entire team dedicated to these patients, they must be committed to promoting self-care in this adaptation process, as they are the ones who maintain constant contact. (SANTOS et al, 2011). In addition, he is responsible for

welcoming the patient and supervising the nursing technicians in checking vital signs, preparing equipment and carefully observing the patient during the session to avoid worsening and intervene in possible irregularities that may arise(SOUSA et al,2021), in addition, weight measurement before and after each procedure, evaluation of phlogistic signs in vascular accesses, and among other functions such as administration of analgesics, electrolytes,medicines and blood products is also the responsibility of nursing to provide comfort to the client (FRAZÃO et al, 2014).

In addition, based on NANDA, nursing care for chronic renal patients is linked to the prevention of infections, promotion of a comfortable environment, promotion of self-care, guidance to the family and the patient, and diet control. (FRAZÃO et al, 2014).Based on this, nursing has the authority and competence to intervene in any situation that concerns the comfort and care of the patient, with one of these interventions being the control and fight against complications, the promotion of safety and well-being and also increased attention to the accesses used in patients (GUIMARÕES, et al, 2017).

In addition, the nurse has the role of excellence not only in physical conditions, but also in emotional ones, being able to prescribe care according to the needs of each patient and create bonds of trust between the patient, the family and the team through therapeutic communication. (DA SILVA FREITAS 2016, et al) thus becoming the most important aspect for improving the quality of life of this patient.

Since complications have become more frequent, hemodialysis seeks to reverse not only uremic symptoms, but changes that are specific to the procedure and the low risk of death, so nursing professionals need to be always up to date on treatment in order to promote safety. and quality to the chronic renal patient (NASCIMENTO et al, 2005).

When analyzing the studies, it is clear that nurses motivate and promote knowledge so that there is action in care, thus proposing that the knowledge addressed is specific to the nephrology professional, being possible only when transformed into acts.

It should also be noted that the area of nephrology is wide, and that each patient has their own specificity in their treatment. With this, the professional must seek to understand the needs of their patients, so that they can respond more eloquently to the discomforts arising from the treatment, as well as the psychological ones (DE ANDRADE et al, 2021).

In view of the above, it is up to the nurse to activate the autonomy of chronic kidney patients through strategies that promote self-care, in addition to preparing and ordering their nursing team, in order to offer a better quality of life to the patient (DE FREITAS et al, 2018).

III. METHODOLOGY

The concepts referring to the subject addressed were described from a bibliographical review with a search in books, magazines, articles, publications by bodies and institutions such as the Ministry of Health. The search for information was based on data available online found on platforms such as: Scientific Electronic Library Online (Scielo) and Google Scholar, whose keywords were: Chronic kidney disease, Quality of life, Nurse and hemodialysis, Nursing care.

IV. FINAL CONSIDERATIONS

Nursing enables an investigation into the care provided during hemodialysis sessions, allowing the patient to learn about the difficulties in the treatment process. Through the action and performance of the nurse, it is possible to notice that the knowledge passed on to the patients through the practical information provided by them, are completed by promoting means of applicability in the performance of the nurse and the patient, thus being the need and relevance of the guidelines and education provided to these patients by expanding their knowledge of the treatment for their own benefit. the care provided by the nurse to the patient showed a motivating and important character for the effectiveness of the treatment, providing necessary subsidies for the improvement and well-being of these patients.

In view of this, the continuing education of nursing teams that provide services in the area of nephrology is essential, becoming a team enriched with knowledge and techniques to improve in the daily work. Some reports made it possible to identify the nurse's relationship with the patient through dialogue and the attention given to patients, thus facilitating their adaptation. Nursing plays a very important role in hemodialysis and this action is undeniable. the nurses became closer contact points with the patient, evaluating care services, psychological support, in addition to often facilitating contact with the family.

It is in nursing that many patients find solace and motivation to continue with the treatment. the care provided to these patients goes beyond the practice of services, whether it is a nurse's advice to the patient, or also guidance to improve their quality of life. many patients create bonds, affinities and always try to please these professionals in each hemodialysis session in order to reward all the affection and care, becoming in many cases the only support during treatment due to abandonment by family members.

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Post pandemic psychic consequences and the use of antidepressants

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***Keywords*— pandemic, depression, medication, quality of life.**

***Abstract*—** *The COVID-19 pandemic brought a new reality to humanity, lasting per very time It is taunting O collapse us services public in health. Due to prolonged social isolation, many individuals began to present physical, psychological and cognitive problems. Furthermore, it negatively affected individuals with pre-existing mental disorders of depression and anxiety. A depression It is one of the bigger damage The health mental existing at the world, being O third bigger involvement worthy in remoteness to the work. Like this, such as: functional, social, intellectual and financial harm. Its main sign is the result of: increasing loneliness, withdrawal from people or social group, anger, feelings negatives It is insecurity how much to the future. At society contemporary, fluid and complex in which we live, it is notorious that there has been an increase in the number of mental pathologies in the population. Those that, are prevalently high, have worsened with The pandemic, represent one serious problem for The population. O The use of medications is fundamental in the treatment, but they can expose users to adverse events and important drug interactions, thus, the objective of this study is to identify the increasing rates of depression and anxiety during the pandemic It is, O use inappropriate in possible substances as solution It is improvement of quality of life. It is an integrative review, with more recent studies with a similar theme on the networks: Scientific Electronic Library Online (Scielo) and Google Scholar.*

I. INTRODUCTION

In agreement with The Organization world in Health (WHO), in your "Flat in action to the health mental 2013-2020", one in each ten people at the world suffered in some disorder in health mental, being what fence in 90 millions in people had any disorder due to abuse or dependence on psychotropic drugs in the period.

This is justified, because in today's society, anxiety has become a natural factor in life, driving changes and alterations, however, when excessive, it has consequences on physical and mental health, and can cause numerous diseases.in varying degrees. It so happens that, with the COVID-19 pandemic, the number of individuals who present symptoms in anxiety generalized increased, It is per As a result, the consumption of psychotropic also.

COVID-19, called the new coronavirus, is an infectious viral disease that is characterized by causing a severe acute respiratory syndrome. Since the first case detected in December 2019 in China, the disease has spread rapidly. for the world It is he was classified as pandemic, being, in March in 2020, defined by the World Health Organization (WHO) as an emergency of concern International.

The new coronavirus was characterized by a high level of direct transmissibility between humans through respiratory

droplets and fomites and, as a result, O number in infected suffered fast rise in one short period in time.

Soon there was the triggering of an epidemic in the country, going beyond its borders and reaching global proportions and, together with this, bringing several negative impacts for the whole society.

Because it is a viral syndrome with the ability to undergo mutations, and absence

– at the beginning of the pandemic – of drugs for the specific treatment of this infection It is from the high transmissibility, measurements for O control from the dissemination were recommended, in between to the which if highlights O detachment Social with The goal to avoid contact with potentially infected individuals who are symptomatic or no.

Due to social isolation, a significant increase in emotional impacts that could develop during this period was evident, such as irritability, insomnia, low concentration, indecision, deterioration, post-traumatic stress and suicidal ideation, which proves the emotional destabilization, which is independent of of the development of the infectious and symptomatological condition.

One of humanity's biggest challenges is to control and reduce the suffering caused by depression, which results in the high rate of medicalization. Therefore, society uses antidepressants that, when used in excess, can cause great harm to health.

Excessive consumption of psychotropic drugs, either through self-medication or professional prescription errors, causes several complications for individuals, such as tolerance to the medicine, intoxications, drug addiction It is interactions undue with other drugs. It is necessary, therefore, to identify the main symptoms manifested in people and, in this way, to think of alternatives for those who continue to be affected by these psychological problems in the long term. term.

For the treatment of depression today there are several classes of drugs that act to control it in various ways, in addition to other methods that help in the treatment. Knowing of this, lots of people use without to have aid in one professional of area, causing like this, several disorders It is dependency of these medicines.

In this way, the scenario of excessive use of medication for depression has been increasing It is with that became if necessary to understand to the consequences of use in excess in antidepressants. Knowing what that excess he can to bring miscellaneous consequences on the health of these people, in addition, it is understood that the medical indication is of paramount importance for the quality of life.

This research has a relevance on the subject under study, since this subject is of global interest, and every pharmacist must be aware of this new globalization at the world from the pharmacy never visa. In addition from that, O knowledge personal arouses interest in specialized improvement on depression, since the pharmacist is a health professional who has direct contact with people with this condition. illness.

Therefore, it is expected that this study will be of great importance for academics and health professionals, and that they will realize how serious this disease is that is affecting the world population, and know: to be close, to know how to welcome, guide and forward for the solution of the problem.

It may contribute socially, as it will address a problem that many professionals face in their daily lives, in addition to serving as a parameter for the knowledge of health professionals and allowing an effective intervention in the prevention of health-related problems due to the irrational use of medicines . O goal main of this study It is to understand The respect of use of anxiolytics during the pandemic and their impacts on the health of population.

II. DEVELOPMENT

The Sars-CoV-2, or Covid-19 pandemic has shaken the whole world, because in addition to deaths, it has left serious sequelae in many infected people. The problem started in the Chinese province of Wuhan and from the beginning of 2020 there were reports of its circulation; reaching the entire globe, which made it a pandemic. **(ALEMIDA et al; 2021)**

The incubation period is five days (median) and ranges from two to 14 days. It is identified that 25% of infected people are asymptomatic, that is, they do not show symptoms during the entire period of infection, but new and better serological surveys may reveal different percentages. **(CARVALHO, 2020)**

People who have the symptomatic forms of the disease go through a pre-symptomatic phase, and may infect others during this phase. It is understood that the viral load is higher at the moment when symptoms appear, suggesting that infectivity reaches its peak before the onset of symptoms, which can lead to many pre-symptomatic transmissions. **(OAK, 2020)**

Covid-19 brought to the world the need to use masks, antiseptic substances It is measurements in detachment Social. During O isolation Social many people developed mental disorders and some of those infected had their conditions worsened. Among the most common mental disorders we can mention anxiety and depression. **(LIME, 2020)**

It brought with it a set of delays in all societies and different classes with physical and mental interference, reaching greater numbers than those infected by the virus and which, only increase day after day in the lowering of mood, irritability, worries, negative thoughts, insomnia, fear , growing financial debts, unemployment and family imbalance. **(LIMA, 2020)**

Evidently, the perception of the unpredictability of this epidemic was enhanced by a network of myths, erroneous and untrue information that were caused, for the most part, by erroneous reports and, perhaps, by the public's misinterpretation of health messages, thus causing concern. collective. **(NEY et al; 2020)**

Pain in head, increase of the beats cardiac, problems in eating, sleeping, physical exhaustion, excessive worry, depressed mood, difficulty concentrating are also the most common indicators of stress and anxiety. Stress is the feeling of being overwhelmed or unable to cope with mental or emotional pressure and can lead to changes in behavior and decreased productivity. **(REASON 2016)**

The pandemic was one of the stages that most caused these acts of isolation, such as: lack of visits from relatives, fear of harm and vulnerability to the coronavirus - of which many are carriers of a chronic disease, being predisposed to COVID-19, especially in elderly being the primary risk factor for both pathologies. **(RIBEIRO et al; 2020)**

This one isolation Social reflected, intensely, at health mental of people in general, that they were afraid, because it was an unknown disease, and they felt mainly terrified because of the news. Some people were afraid of dying and others were afraid of losing their jobs, as many companies were forced to close their doors by government determination. **(VASCONCELOS et al; 2020)**

As much as clinical and scientific strategies and efforts are created to reduce the effects of the virus on physical health, its consequences, in the short and long term on mental health, become a cause for great concern. **(VASCONCELOS et al; 2020)**

Periods of social isolation are prolonged, loneliness, anger and negative feelings threaten psychological integrity. The elderly, in turn, constitute the most vulnerable group in this pandemic, due to their greater susceptibility to developing the most severe form of the new coronavirus and, because they have a high association with chronic diseases. **(BARROS et al; 2020)**

The occurrence of family mourning, cognitive impairment and loss of functional mobility are other factors strongly associated with the occurrence of depression. Among the protective factors are: social support, carrying out activities social, above all volunteering, activity physical It is participation in religious activity, being these to the big ones barriers imposed for the pandemic in 2021, at the which generated a series of psychiatric disorders in all classes. **(WHO, 2020)**

The emotional consequences have multiplied in the pandemic and between relationships they are: The poverty, O unemployment, O increase of illnesses, to the changes in style in life, to the concerns with debts residential, The oppression for the domestic violence and hunger, increased the crises of anxiety and depression in people with predisposition and triggering new cases. **(CRF, 2020)**

The combination of these findings, together with a sedentary lifestyle and withdrawal from routine activities, are the main milestones for triggering psychological disorders, increasing health costs and reducing the quality of life of individuals, leading The changes at the system nervous central, factors metabolic, hypothalamic axis and shorter sleep duration. **(LOPES, et al; 2018)**

Faced with the psychological changes that have increased in the context of the pandemic, the pharmacist gains importance for being a health professional who pays attention It is assistance pharmaceutical, with O purpose in to advise It is guide O patient, even if society makes use of the pharmacy as its first alternative for health care, therefore, it is necessary to have all the information available, emphasizing that the use irrational It is indiscriminate in medicines he can cause grievances for health, especially when it comes to antidepressants. **(SILVA, 2020)**

The population in general was not used to experiencing situations such as the pandemic, a routine that is not part of their daily lives, leading to several types in doubts, fears It is insecurity, where The smash of that conjuncture leads everyone to uncertainties related to the future. Anxiety and depression is one of the main diseases that affect people today, leading to an unbridled consumption of anxiolytic drugs and with that the worsening of the clinical picture, masking symptoms and making the real clinical diagnosis of the disease difficult. **(SOCCOL et al; 2020)**

Another public affected by major emotional impacts during the pandemic are health professionals (public most affected by the pandemic), due to: work overload and psychological pressure, the closing of bars and restaurants was one of the big ones motives for O development in concussions psychological, The withdrawal from laser, life Social It is moments in distraction, already what, It is one of the moments unique for this class of workers. **(ZWIELEWSKI, 2020)**

According to the National Health Surveillance

Agency, "it defines self-medication as the act of taking medicine on your own, it is the use of medicine without prescription, guidance or supervision of the pharmacist", becoming a recurring phenomenon, and has causes in the ease of access to medicines, and lack of knowledge about their risks, which can lead to serious health complications. **(ALVES, 2021)**

As there was no pharmacotherapeutic protocol for the disease in that year, 2020, and in view of the massive dissemination of information about possible treatments, there was an exponential growth in self-medication, especially with the use of drugs such as Azithromycin, Ivermectin, Chloroquine and hydroxychloroquine. **(DUARTE et al; 2020)**

The use of drugs without proof of proven efficacy can pose risks to the health of the population. In addition, the authors warn that the irrational use of medicines, the unbridled purchase of them can cause the lack of them for those who really need them. **(FILARDI et al; 2019)**

Such was the case, for example, of Hydroxychloroquine, which was lacking for patients affected by Lupus. Thus, people with chronic diseases, who could in fact need in such medicines stayed without access The they why others, what many times they are not even sick, they are stored at home. **(FILARDI et al; 2019)**

To the drugs psychotropic they can to be defined as drugs what act altering mood and behavior, causing changes in communication between neurons, which may have different effects depending on the type of neurotransmitter involved and the mode of action of the drug. **(FEITOSA et al; 2021)**

Therefore, depending on of type in action, The damn it he can cause euphoria, anxiety, drowsiness, hallucinations It is delusions. You effects in each medicine depend in its class, route of administration, quantity, timing, frequency of use, absorption and elimination by the body, and interactions with other drugs. **(FEITOSA et al; 2021)**

The antidepressants most used for treatment with the public during the Covid-19 Pandemic were the Selective Serotonin Reuptake Inhibitors (SSRIs) which are designated by: Paroxetine, Fluoxetine, Venlafaxine, Sertraline and Citalopram. **(PAULINO, 2018)**

Paroxetine, Fluoxetine, Venlafaxine, Setraline and Citalopram, are used to treat The depression, disorder obsessive-compulsive, disorder in panic, disorder of anxiety widespread, disorder in anxiety Social (also known like phobia Social), disorder dysphoric premenstrual It is disorder in stress post-traumatic. **(PAULINO, 2018)**

The mentioned drugs, when used in excess and without medical and pharmaceutical guidance, cause side effects such as headache, gastrointestinal, difficulty at coordination motor, riots at the sleep It is at the level in energy and in some situations, dependency chemical and dysfunction sexual. **(FIOCRUZ, 2021)**

It turns out that the effects resulting from the chronic use of these substances, for months or years, can result in the user's chemical, physical or psychological dependence, and abstinence severely impairs social life, due to irritability, excessive insomnia, myalgia and possible seizures. **(GRUBER et al; 2014)**

The pharmacological treatment of depression and anxiety disorders is carried out through drugs that act on the central nervous system.decreasing anxiety and improving chemical imbalance. Treatment is carried out according to the characteristics of each patient and each diagnosis. However, the abusive use of psychotropic drugs is a concern of health professionals and the pandemic seems to have aggravated this scenario. **(GORENSTEIN et al; 1999)**

About 16.6% of the use of anxiolytics without medical advice may be mainly related to advertisements, ease of obtaining a prescription and aggravated drug addiction. This finding demonstrates the risk to which the subjects who practice this practice are inserted, since the indiscriminate use of anxiolytics can generate serious health problems, especially related to dependence and serious side effects. **(PRIETSCH, 2015)**

Knowing that, in general, any drug that acts on the CNS can cause dependence, the irresponsible use of psychotropic drugs is no different, bringing psychological dependence and making it difficult for medical actions to correct this problem. Even in the face of information about the adverse reactions caused by the use of drugs, there is an unbridled consumption of psychotropic drugs, leading to cases of drug addiction. Long-term effects such as amnesia and cognitive dysfunction have been reported. **(NOAL et al; 2020)**

It is therefore relevant to seek a better understanding of the relationship between the pandemic It is O use in psychotropics, for what if be likely to to create strategies what minimize the suffering of those most psychologically affected by the COVID-19 pandemic. **(RIBAS et al; 2017)**

It is noteworthy that there was an increase in sales of psychotropic drugs during the pandemic period, and post-pandemic. Sales differ between the classes of drugs marketed, with those related to the treatment of anxiety and the depressive spectrum being the classes that had their sales most boosted in the period. **(OLIVEIRA et al; 2021)**

A self-medication It is one practice what it is each

turn more common at the world all, even us countries developed It is very from that if he must The advertising, what influences practice, in addition, obviously, to problems related to the health system and the ease of acquiring medication. In these cases, the sick person buys the medicine himself or someone who is in charge of him, because he believes that can solve O problem; occurs what The self-medication It is one practice risky, which can be harmful to health, not good. **(RAFAEL et al; 2020)**

Inappropriate and indiscriminate consumption of certain types of medication can cause serious damage to the individual's health, leading to serious problems that have short and long-term sequelae. The effects of anxiolytics are notorious, especially in terms of affecting the Central Nervous System, bringing drug dependence as the main consequence, where the individual is no longer able to feel well without the use of continuous drug use. **(SILVA et al; 2020)**

The pharmacist has tools such as pharmaceutical assistance, which allow Act actively together The society, for what you patients be always the main beneficiaries, and contribute to personalized and humanized drug treatments, aimed at improving the quality of life and the state of social and health recovery, preventing drug-related problems, drug interactions and promoting the rational use of drugs. **(TREBIEN, 2021)**

It has a primordial role for the quality of life, assisting people with its knowledge. These professionals must become more actively involved in their attitudes and actively promote the health of the population, which is why they also need to join a multidisciplinary health team with the patient as the main focus. **(BARBOZA et al; 2021)**

In mode general, O use excessive and/or indiscriminate in psychotropics It is one topic that concerns most health professionals and health authorities. Considering the importance of the rational use of medicines, the present study aimed to analyze the possible causes related to the growth from the dependency of use in psychopharmaceuticals, during The pandemic from the Covid-(BARBOZA et al; 2021)

III. METHODOLOGY

The study used the bibliographic review approach, with the objective of searching for articles scientific, standards It is guidelines clinics about O use It is O possible increase of the use of drugs in the treatment of generalized anxiety disorder (GAD), including since the COVID-19 pandemic, in order to address the pandemic perspectives in Brazil and the crises caused in the social system. A study was carried out based on articles and journals available on the Internet, using mainly reliable academic sites, especially scientific platforms such as Scientific Electronic Library Online (Scielo) It is Google Scholar, as search tools, having as descriptors or keywords: pandemic, depression, medication, quality of life. Inclusion criteria were studies published between 1999 and 2023 that investigated the use of antidepressants in childhood, adolescence, adult life, as well as pharmacological treatments, analyzed separately or in set with others interventions (ex: psychological) at the treatment of these individuals.

IV. CONSIDERATIONS FINALS

It is increasingly common for people to be diagnosed with a mental health problem, such as anxiety, depression or attention deficit disorder, as a result of biological and social factors. In addition, the SARS-CoV2 virus, which is rapidly transmissible and spread wildly during the COVID-19 pandemic, together with the high frequency of information disseminated, ended up affecting the psychology of many people even more, increasing cases of health problems. mental. This article contributed to identify what current research scientific studies regarding the use of psychotropic drugs reveal about the mental health condition of Brazilians during the pandemic. Identified that social isolation intensified problems of the which reach The health mental of the elderly, children, young people and adults such as: the fragility of the immune system associated with other comorbidities, ageism, loss of autonomy and difficulties encountered in social communication relationships, especially with the family. He highlighted, therefore, that these measures, when prolonged, brought even more serious impacts, such as: anxiety attacks, depression and the need for continuous use of anxiolytic drugs. Health professionals, active in the commission against the coronavirus, were the public highlighted due to: the fear of contamination to the environment familiar, tall loads hourly in work, fear from the death, emotional exhaustion, stress, lack of cure, lack of vaccines, low wages and lack of PPE's (Personal Protective Equipment). Thus, the large consumption of anxiolytics and antidepressants highlighted by the pharmaceutical industry was notorious. The use of psychotropic drugs is a concern for public health, especially why This one type in drug It is consumed per one diversity of people of different age groups and in many cases without specialized assistance. After the pandemic, many people began to manifest symptoms such as anxiety and depression, leading them to look for an immediate and drug solution that could pose health risks. It is necessary to seek ways to instigate and consolidate communication between health professionals and the patient, enabling better coping with the problems caused by the pandemic, emphasizing the role of the public power, which must be oriented to

disseminate the best information, promoting the correct use of medicines.

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Fruits and Vegetables Detection using YOLO Algorithm

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Abstract*—The robotic harvesting platform's fruit and vegetable detection system is crucial. Due to uneven environmental factors such branch and leaf shifting sunshine, fruit and vegetable clusters, shadow, and so on, the fruit recognition has become more difficult in nowadays. The current method in this work is used to detect different types of fruits and vegetables in different size and shape. This method makes the use of OpenCV, Dark Flow, a TensorFlow variant of the YOLO technique. To train the necessary of network, a range of fruits and vegetable pictures were input into the network. The photos were pre-processed using OpenCV to create manual bounding boxes around the fruits and vegetables before into the training. YOLO detection algorithm is used. In, this method more accurately and rapidly recognizes of an item in an image. After the network has been trained, the test input is sent into the bounding boxes surrounding the recognized fruits and vegetables will be displayed as a consequence.*

I. INTRODUCTION

The main factor in the agriculture sector with the highest cost demands. This is brought on by rising supply costs for items like electricity, irrigation water, and agrochemicals, among the others. Because of this, the horticulture sector and farm enterprises are suffering from thin profit margins. Under these circumstances, food production will need to increase to meet the rising demands of a growing world population, which will be a major problem in this future. Due to its greater endurance and repeatability, robotic harvesting has the potential to save labor costs while simultaneously enhancing the fruit quality. These factors have led to a rise in interest in deploying agricultural robots to harvest fruits and vegetables during the past three decades. It takes a lot of challenging tasks, including choosing and manipulating, to build these platforms. Although it is the first perception of the system that comes under later manipulation and grasping system, building a reliable fruit identification is a crucial first step toward fully automated harvesting robots. Suppose the fruits cannot be detected or seen, it cannot be gathered. This level is challenging because of a number of factors, such as changing illumination, occlusions, and situations in which the fruit seems visually similar to the background. To deal with these problems, as well as we require a highly discriminative feature representations and a generalised model that is robust to changes in brightness and perspective. Fruits and vegetables are essential for human diet as well as animals and other living things. The requirement for food is two times more than it was previously due to the ever-increasing population of all living creatures. Farmers must work extremely hard and long hours to meet such a large demand, and farms must be monitored at all hours of the day and night. The product is affected by climate change in addition to the expanding population. Untimely rain and sweltering heat

hinder the farmers' arduous task.

Convolutional neural networks (CNN), recurrent neural networks (R-NN), fast R-NN, YOLO, and other techniques are available in this field and may be used to identify and recognize fruits and vegetables. Based on training data given to the network, You Only Look Once (YOLO) is an efficient object identification method. Each frame updates into the input are examined, and the necessary items are frame into quickly. Various techniques have been to identify into fruits and vegetables. In techniques such as CNN, RNN, and Fast RNN, only certain sections of interest are applied to identify objects within an image. The networks mentioned above do not employ a holistic approach. These regions of interest are sent into the Needed model's network, and only those things are found there are trained. When compared to the region-based algorithms, YOLO is extremely different. One convolution network is sufficient to retrieve the YOLO class probability and bounding box information.

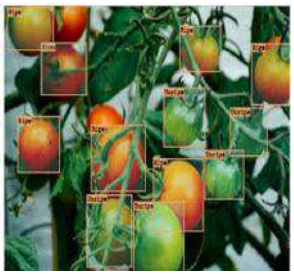

Fig.1(a) *Fig.1(b)*

The photos used for YOLO identification are shown in Figures 1(a) and 1. (b). Yolo-based real-time application detection systems may be used to a variety of applications with good generalization. With a little amount of example picture data, it is easily adaptable to any sort of fruit and vegetable. methods that use a variety of data in both early and late fusion.

II. LITERATURE SURVEY

A non-destructive approach based on thermal imaging is suggested by S. Raka, et al. [1] for evaluating the interior and exterior quality of fruits. Analyzing the fruit surfaces of the heated properties allows for the precise determination of ripening conditions. The creation of an automated system can decrease the time-consuming human inspection tasks involved in fruit sorting.

According to Y. Yu *et al.* [2], the primary technical challenge to the implementation of robots for strawberry harvesting is the need for improved real-time performance in the localization algorithms. To locate the plucking point on the strawberry stem. By estimating the position of the fruit goal and this accuracy can be achieved by the fruit axes of orientation. In this survey, a novel strawberry result of robot for the ridge-planted berries is introduced, along with a rotating yolo r- yolo fruit pose estimator that increases the efficiency of picking point localization for the lightweight network.

Convolution neural network was replaced with mobilenet-v1 is backbone of the network for feature extraction. Alternative, rotation of the angle guideline was used to design the training set and establish the anchors, and then logistic regression and rotated anchors were used to predict the spin of the target fruits bounding boxes in a batch of 100 strawberry photos. This considerably boosted operating speed. The average identification rate and recall rate for the suggested model were 9443 percent and 9346 percent, respectively. The integrated controller of the robot processed eighteen frames per second, which showed strong real-time achievement in terms of actual identification and localization efficiency of choosing places. This study presents technical advice for enhancing the fixed controller of fruit picking robots target recognition, showing that the recommended design outperformed a variety of different target identification methodologies.

Osman, Y., *et al.* [3] A two-stage approach includes recognizing the fruits and then tracking them framework by framework. The principle of "You Only Look Once" is applied to identify threats (YOLO). Bounding boxes are collected from the finding and Non-Max Suppression (NMS) is utilized to produce the concluded detection. The tracking system is then supplied with the boxes. We use a Deep SORT algorithm that was especially developed to deal with fruits for tracking. Using box coordinates, the original image is cropped to eliminate each recognized object. ResNet, a convolutional neural network (CNN), then extracts features from the cropped image to build the feature map. By comparing the attributes of new and old detections using a distance metric, which links the two things with the smallest distance, new detections are connected to previous detections.

Input items with no associations are studied as branded different objects to be monitored. We maintain path of the fruits through-out the video frames to assure that we are conditional accurate they are initially observed. We determine the method using videos taken in an apple garden to demonstrate this approach's very effectiveness in the natural light. The decision show that fruit counting on real-time video grain can be performed with great precision. The new method works with all types of fruits and vegetables and doesn't require any modifications to the algorithms.

In this study, a prototype of an autonomous fruit harvesting robot built around a mobile chassis and a robotic arm is proposed by S. M. Mangaonkar et al. Our suggested architecture can recognize fruits using an object identification method and an image pre-processing module (YOLO v3). This study proposes a prototype of an autonomous fruit harvesting robot based on a robotic arm mounted on a mobile chassis, developed by S. M. Mangaonkar et al. [4]. Our suggested architecture is capable of recognizing fruits thanks to an image pre-processing module and an object detection algorithm.

K. R. B. Legaspi and colleagues [5] Whiteflies and fruit flies were identified and classified using YOLOV3. The analyst used a Raspberry Pi camera to acquire images, and also set up both desktop and online applications for viewing the images captured by the Raspberry Pi camera. The confusion matrix showed that the miniature had the overall accuracy of 83.07 percent in recognizing and recognizing fruit flies and whiteflies.

According to S. K et al. [6], The Regional Built Convolutional Neural Network (RCNN), Fast RCNN, and Faster RCNN are examples of pre-trained Deep Neural (DNN) representations. To detect fruits in an input image, the You Only Look Once (YOLO) V3 and the Single Shot Multibox Detector (SSD) were implemented on the RISC-V architecture. COCO datasets are used for pre-training to ensure uniformity across all DNN models. In terms of accuracy and inference efficiency, experimental results demonstrate that YOLO and SSD-Mobile Net outperform all existing DNN models for object recognition on the RISC-V architecture.

The team of Yogesh [7] The fruit quality detection technique described in this study was built on the basis of the form, size, and colour of the fruits' external features. Manual fruit monitoring is ineffective in the agricultural industry due to growing demand. Therefore, the agriculture sector needs a capable approach to support it in meeting customer demand. The recommended method makes advantage of a sturdy feature that is speeded up. The approach discusses object detection by eliminating the local feature from the segmented picture. Creating a flaw detection method that can be utilized to quickly extract features and descriptions is the goal.

A fruit identification technique is suggested by Z. S. Pothen et al. [8] that makes use of the fruit's surface's slow change in intensity and gradient orientation. For potential fruit sites, gradient orientation profiles and monotonically falling intensity profiles are both examined also named as means by either "seed spots" To categorized into potential fruit spots that pass the first filter, altered histogram of directed gradient is to combined with a pair of the depth comparison of texture caption with a random forest classifier. The effectiveness of the fruit recognition algorithms on the fruit's datasets using the human-labeled images on the ground truth. This methodology is to identify the size invariant, resistant to partial occlusions, to be precise than existing method for identifying potential fruit locations.

In order to address issues with human health, K. Roy, et al. [9] offer a method for segmenting rotting vegetables. Edge Detection, Color Based Segmentation, and Marker Based Segmentation were three segmentation techniques that delivered effective and beneficial outcomes. The segmentation techniques outlined above successfully distinguish between rotting and healthy parts of a vegetable, allowing the diseased veggies to be distinguished from the healthy ones. Using an automated system to sort vegetables can save money on labor and increase accuracy for any company that manufactures food goods. On numerous levels, the ways to spot rotting veggies are examined.

An image-based technique is to identify the grade fruit size is presented by H. Dang and colleagues [10]. Following the acquisition of the fruits image, of several fruit characteristics are extracted into detection techniques. These characteristics are used to grade students. This integrated into grading system has to the benefits of high grading getting better accuracy, quick speed, and low cost, according to experiments. It is likely to be applied to yield-related detection and grading.

According to colour and form data, T. Gayathri Devi *et al.* [11] provide an image processing technique for completely independent separation and production forecast of fruits. The pre-processing procedure is started using the supplied fruits images. The picture is then determined to transform from RGB to HSV Color information to analyze the berry from the roots. The required colors may be hidden using colour edge detection. To diminish noise, of Gaussian filter is used. The picture outline is measured. The photographs are then processed using an image analysis technique. Fruit counting based on colour and shape is displayed in the result. The fruit and vegetables in the image are automatically segmented and counted using feature extraction and a circular fitting approach. Various fruits such as (orange/tangerine, pomegranate, apple, lemon, mango, and cherry) are used for automated conditional. Using the Open CV, the necessary image processing operations are completed.

Orange fruit pictures taken in natural illumination were segmented using edge-based and color-based

detection techniques done by R. Thendral et al. [12]. The objective of this study was to locate and identify an orange in each of the twenty digitized fruit images that were casually selected from the Net. Edge-based segmentation is consistently outperformed by color-based segmentation. The computation is carried out using the MATLAB image-processing toolbox, and the computed outcomes are exposed in the segmented image results.

III. METHODOLOGY

Fruits and vegetables must be divided in order to be seen clearly against a backdrop of leaves and stems. Due to the variations in color and lighting, significant quantities of the occlusion, and other considerations, this test is difficult. Yolo is a real-time object tracking system that is offered as a technique. Yolo's primary premise is that you only look once when configuring a model for training. This approach then requires that you test the model with the necessary versions since the model versions change. Yolo has overtaken the market leader, CNN, in terms of popularity. Yolo and CNN are equivalent, although CNN does real-time object tracking less well. Both boundary boxes with a different CNN are analyzed by YOLO. YOLO is favored due of its speed.

Furthermore, unlike CNN's moving window and area proposed bill algorithms, it generates predictions while maintaining a global perspective. The secondary cause is YOLO's fast learning of generalizable representations of objects. One of the distinctive characteristics that the network discovers for each border box is the size of the boundary box and the many class choices. Only item classification with a quality greater than the edge is utilized to identify the images inside the box when a threshold has been specified. It is crucial to consider the output encryption technique YOLO employs. On the basis of the supplied picture segments, a N x N matrix is created. Even when there are numerous images are just one square of the grid, cell in the object's centre aids in predicting its existence. Each cell is surrounded by five bounding boxes, each of which has five distinct characteristics denoted by a letter (x, y, w, h, c).

The coordinates of the box's core cell are: (x, y). the bounding box's dimensions are (w, h). The confidence score is the last element that determines whether or not an item is in the box (c). If this is the case, the item is not included within the box, the score will be 0. Ideally, the element should be zero, but if it is present, it should be one. The formula used to determine the confidence factor favor's the intersection of the box and the accuracy over the union of the prediction box. Additionally, YOLO determines the probability for each category. Class probability refers to the possibility of each class that the object. The class possibility is the likelihood that the images in the case that fits to session. As a consequence, N x N x C possibilities, where C is the number of classes, are generated, with each cell forecasting one class probability.

Pre-processing is done on the pictures to get rid of noise and outliers, improve contrast enhancement, and speed up the algorithm. Although additional pre-processing techniques may be used in this approach, Non-Max Suppression is the major emphasis. The network topology resembles that of a typical CNN with 24 convolutional layers and two completely connected layers at the end. The Google Net idea is used to construct the YOLO network architecture. Fast YOLO is a quicker variation of YOLO that uses nine convolutional layers slightly than 24 and maintains all other limitations constant with exception of the system size.

The spatial arrangement of the grid cells that go into creating the bounding box makes YOLO less successful at recognizing little objects in big groupings. Since YOLO learns mostly from data, the system cannot recognize in advanced or changed shape of aspect ratios.

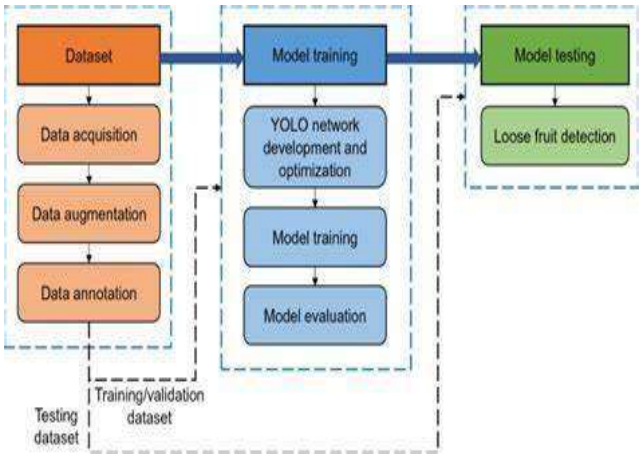

Fig.2. Yolo Architecture for Detecting Fruit and Vegetables

There are several methods to implement the YOLO approach, and our system uses Darknet, an open-source neural network framework. An open-source real-time computer vision library is called OpenCV. Since its creation in C++, it has been translated into a number of programming languages. We will use the OpenCV cv2 Python library. Drawing a bounding box that represents the upper left edge and lowest of the correct coordinates is one of cv2's four main features. Rectangles are drawn using the provided coordinates using this function. The expected class labels and confidence ratings are combined on each bounding box using a second algorithm. The final task is to

scan the picture and look for class labels. The last approach is employed to read a movie from regional cache and give it class names. Additionally, it may be used to access the real-time video from a webcam or new computer hardware.

Tensor flow operates on both the CPU and the GPU equally; however, the Yolo GPU version runs quicker than the Yolo CPU version. According to GPU specs, Yolo operating on a GPU can analyze video at a rate of 40100 frames per second, whereas Yolo consecutively on a CPU can only manage 38 frames per second.

A. Training Image

The first phase in training is to get relevant photographs from the web, which are mostly pictures of distinct kinds of cucumber, apples, and capsicum. For a quick and precise categorization, train as many images as you can. From various web sources, a total of 100 photographs of each vegetable were collected, with 60 images being utilized for train and the 40 for testing. The network's distinctive qualities are determined by a number of variables in the YOLO configuration file; this variable quantity must be altered to match our contributions and productivities.

An xml document is created in which the top-left and bottom-right coordinates of all picture in the train dataset are listed. After that, a rectangle selector runs a Python script to complete this task. Moreover, the data is supplied to the system, a pre-trained dataset like yolo-tiny should be amount. The epochs are set to 300, overwriting the default of 1000, and the learning rate is set to 0.001. Each training phase will run the full batch of 16 photos done the unseen layers and adjust the masses accordingly.

The complete dataset has been divided into batches. All the epoch consists of 11 batches and 11 step due to the 180 pictures in the dataset. We have the same number of batches as there are epochs in our system. The mean error would have been calculated after each step, the weights would have been back-propagated, and all of the pictures in that all the batch subjected to all hidden layers.

As a consequence, all of the pictures have disappeared through the hidden layer once at the end of each epoch, allowing us to calculate the mean error. The regular error does not alteration training the times, the train is still or the learning rate is change. The average error is discovered to be between 4 and 6 after 137 training iterations and did not drop any other. At the conclusion of every 125 steps, Yolo will save the masses file in the resident manual. These mass files test our miniature utilizing it.

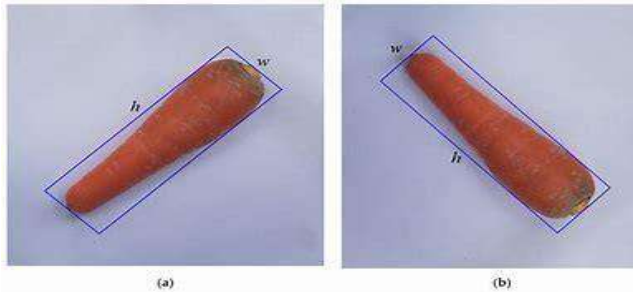

Fig.3(a) and Fig.3(b) boundary box for the practice pictures.

B. Testing Images

To accurately identify and categorize in presence of vegetable images, and that can be loads into the trained YOLO model and then lots into the dataset that has to be classified. The location and class of the veggie are also determined by the writing. A bounding box with the class label and confidence score is produced using OpenCV. The classical only identifies bounding boxes with a confidence score of 0.15 or above because a confidence threshold of 0.15 has been established. The same method is demonstrated in a movie to identify fruits and vegetables.

Every frame of the film is taken out, and using a threshold of 0.15, each picture is categorized like every other image. A lot of computing power is required for movie processing; else, object detection and classification on a film would be quite sluggish. In this algorithm is classified into the 3 modules into actual period, a script is printed into load the classical was trained into capture the video. The bounding boxes for all picture in individually edge by passing the edges to the algorithm. Here, too, the 0.15 cutoff is employed. For a fast comparison, the microchip type of Tensor Flow processes webcam footage at 4-6 frames per second.

IV. RESULT AND ANALYSIS

The dataset utilized comprises of 180 test photos of all three vegetables in different arrangements, such as horizontally, vertically, or in challenging lighting as a group or as a backdrop. Decreasing the learning rate to 0.001 will accelerate the training process. The program was set to run for 300 epochs, with 11 stages per epoch, as the batch size was set to 16. Following 100 epochs, the average error rate is 4-6. When the dataset was further trained, into 137th epoch, the average error did not significantly vary across successive stages.

The training remained halted and the weights that were obtained were saved in order to evaluate their accuracy. Then, this classical is tested into a range of

sample photos. 70% of the veggies were correctly identified and classified more often than 70% of the time when a video was used as an input to the algorithm. Vegetables in a range of situations and orientations, including vertical, in bunches, and against complex backgrounds, could all be successfully identified and classified by the model. The model also produces a confidence score for every prediction, which was more than 50% for almost all of the photos.

Table 1. Fruits and vegetables' effectiveness

The quantity of pictures examined in fruits	50
Average degree of assurance	67.6%
Number of vegetables photographs that underwent testing	50
Average degree of assurance	67.6%
Number of pictures where different fruits may be seen	75%
Number of pictures in which different vegetables are visible	75%
Percentage of photos with false positives	50%
The proportion of photos with a confidence rating of at least 50%.	65%
Number of photos with a greater than 80% degree of confidence	20%

The YOLO algorithm works by dividing the image into a grid and predicting bounding boxes and class probabilities for each grid cell. This approach allows YOLO to detect multiple objects simultaneously and with high speed and accuracy. Keep in mind that the quality and accuracy of YOLO's detections depend on various factors, including the quality and diversity of the training data it was exposed to during its training phase.

As a result, the model was able to correctly identify and classify the the fruits and vegetables. With a high confidence score of over 50%, the model accurately detects cucumber, and it also correctly detects numerous cucumbers. When there are a lot of cucumbers, the model sometimes provides false positives by identifying half of a cucumber as a full cucumber. There are a few instances where the model fails to detect a vegetable due to the unknown orientation of a vegetable.

Fig.4. Images of several fruits that YOLO detected

Green mango was likewise confidently and effectively identified and identified. In the bare minimum number of photos, the model accurately classifies fruits and vegetables with a 65% accuracy rate. The model has a high degree of confidence in its ability to identify several green apples in a picture. The model correctly identifies green capsicum and categorises it, as well as various other capsicums in complicated backdrops.

V. CONCLUSION

A model for identifying fruits and vegetables has been developed, along with the recommended approach, which has been built, trained, and tested. Our algorithm can identify and classify 60–70% of the crop and can identify different vegetables in a single picture under a variety of limitations. 70 of the photographs were accurately categorized when the threshold was set to 015 since the bulk of the images were downloaded from the internet. The more effective training set is greater than the accuracy in

categorizing each of the shots if we had utilized off-field images as our training examples. For this model to discriminate between foreground and background produce in an automated harvesting system, depth information is crucial. This may be done by utilizing 3D photos and altering the system so that it no longer uses 2D images for training characteristics like size, colour and texture.

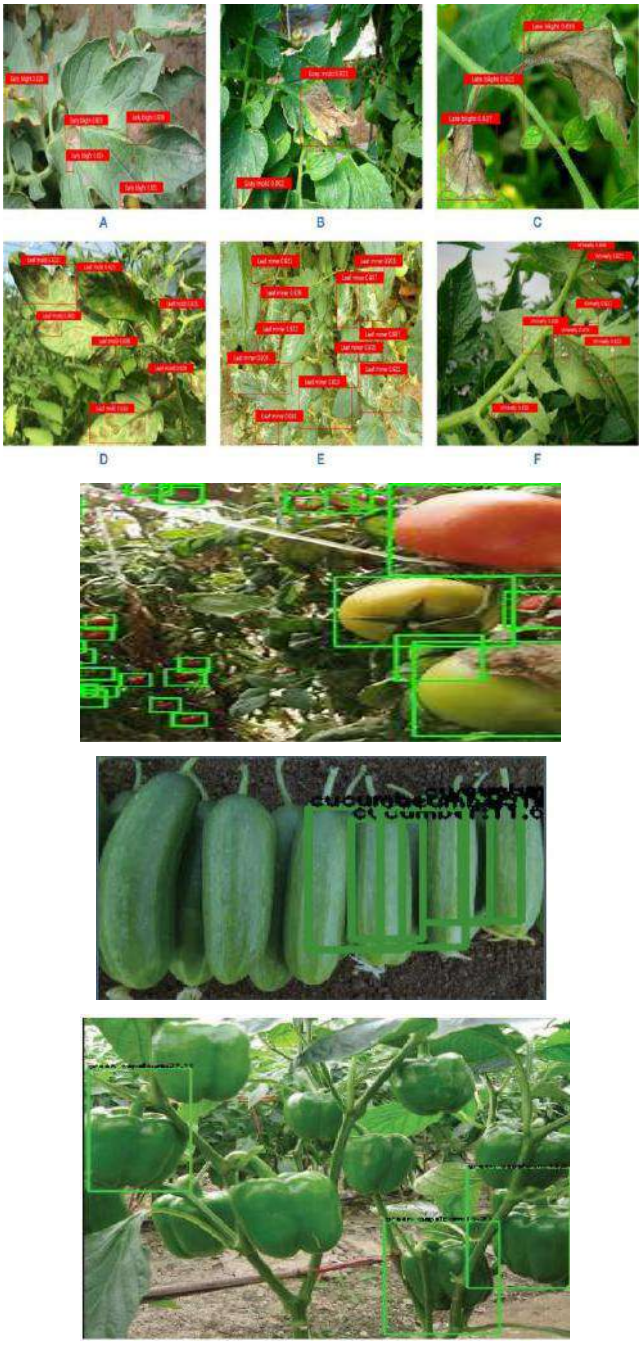

Fig.5. YOLO detection of various vegetable images

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School Library

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***Keywords*— School library, Reading, teaching process.**

***Abstract*—** *This work addresses the development of the school library within the school environment, the relevance of this research approach lies in its ability to provide a solid foundation for the development of scientific and academic studies. bibliographical research plays a fundamental role in the theoretical foundation of a study. This study aimed to understand the role of the school library in the teaching and learning process as a support for education professionals and students, to identify the role of the school library; know the importance of the school library as a support to the educational process, address educational actions that can be developed with education professionals and students. This is a study of the bibliographic review type, this article aims to emphasize the importance of the library in the child's school life, thus with the help of the authors allowing to praise the idea that the library has a fundamental role in their educational formation. It is concluded that the school library plays a fundamental role in supporting education professionals, offering resources and services that enrich the teaching-learning process within the school environment.*

I. INTRODUCTION

This article deals with the school library, an environment that can benefit children who need it for their cognitive growth. The importance of the library in early childhood education and provide the scope of the use of information within the space provided, show the importance of the library to the development of children's reading, assist in literacy and enhance their learning.

Through a diverse and updated collection, students have the opportunity to explore different literary genres, discover new authors and expand their cultural horizons. Pimentel (2007, p.24) states that the school library is "libraries are allies in the pedagogical doing, making it an extension of the classroom"[...].

From this reflection, understands that the library and of great value to the mediator teacher who will develop actions for your advancement and learning of the child. Another important aspect of the library is its ability to promote research and the search for knowledge.

The library plays a fundamental role in the learning of students at the primary level, providing a series of educational benefits essential for their academic and personal development. This multifunctional space goes beyond just storing books, playing an active role in students' education.

Students have the opportunity to see themselves represented in stories and to learn about different realities and points of view, developing empathy and understanding of the world around them.

With access to computers, internet and other sources of information, students can conduct academic research, explore different topics and build skills in searching and selecting information relevant to the research done, it is in this environment that researchers and students find bibliographic references relevant to their investigations.

These spaces provide a quiet and stimulating environment, ideal for the absorption of knowledge, many libraries promote activities to encourage reading, such as reading clubs and literary events, stimulating the taste for reading and enriching the cultural repertoire of the

community, it is in this space that researchers and students find relevant bibliographic references for their investigations.

The library can be an environment for curriculum integration, connecting different disciplines and promoting an interdisciplinary approach. Teachers can use the library as a space to develop educational projects, stimulating collaboration among students and interaction with different sectors of knowledge.

In this way, the library becomes a favorable place for the construction of knowledge in a contextualized and meaningful way, the library contributes to the formation of critical and active citizens in society.

According to Berenblum (2006, p.25) "through various initiatives around reading, they can work to instigate curiosity, stimulate research". In this respect the actions around reading and essential for learning and makes it necessary for those who need to develop, these initiatives around reading instigate curiosity, stimulates to achieve a qualified learning.

In reason when the child begins to read, and need to understand why she needs to know, why and why read, this will motivate her to read for pleasure, taking into account the didactic that will be developed in the classroom, the teacher will address the problems encountered before all student teaching process.

Teachers can use the library as a space to develop educational projects, stimulating collaboration among students and interaction with different sectors of knowledge.

Therefore, this work aimed to understand the library space in the knowledge process as a support to education professionals and students, as specific objectives; identify the role of the library; know the importance of the library as a support to the educational process, address educational actions that allows to be developed.

II. THEORETICAL REFERENCE

The library plays a key role in the context of literacy and primary education, contributing significantly to the development of students' reading and writing skills. It offers an environment rich in resources, stimulates the love for books and promotes the development of fundamental skills for students' education (Freitas and Silva 2014, p. 128).

"The public library is the privileged space for the development of reading practices and, through the reader's encounter with the book, the critical reader is formed and contributes to the flourishing of citizenship. "

(National Library Foundation)

In addition, the library also provides an environment conducive to the development of writing skills. Students can find models of various texts, from short stories and poetry to reports and articles. They have the opportunity to observe different writing styles, text structures and composition techniques, which helps them improve their own written expression. The library can also promote creative writing activities, literary challenges and contests, encouraging students to explore their creativity and improve their writing skills (FREITAS; SILVA, 2014).

In view of this, the school library plays an important role in promoting reading as a pleasurable habit.It provides cozy and inviting spaces for reading, with comfortable and attractive reading areas. Students are encouraged to spend time in the library, explore different literary genres, discover new authors and get involved in book clubs or collective reading projects.These practices contribute to creating an environment of immersion in reading, stimulating interest, motivation and the formation of avid readers (VERGUEIRO, 1997a, p. 4).

The library can also play an active role in promoting information literacy. Students learn to use the library catalog, to search for information in reliable sources and to develop research skills.Librarians play an important role in guiding students in the proper use of search tools and in the critical evaluation of the information found.These skills are fundamental for the development of critical students, able to find, analyze and use information effectively Returning to Freitas and Silva (2014, p. 128).

In Brazil, public libraries have been acting as school libraries, since most public schools do not have libraries.

Some schools have reading rooms or workshops, but they do not meet the essential requirements of what is considered a school library.Thus, public libraries are requested by elementary and high school students who, in turn, by meeting this demand of society, do not fully develop the function for which they actually exist (VALENTIM, 2016, p. 23).

The school library plays a crucial role in child development, offering an enriching environment that promotes learning, interest in reading and personal growth.It provides a welcoming and stimulating space, full of resources that contribute to the integral formation of children (BERNARDINO, SUAIDEN, 2011, p. 138).

First of all, the school library is a place that stimulates a love of books and reading.

By providing a wide range of children's books, fairy tales, fables, exciting stories and fantastic adventures, the library sparks children's imagination and curiosity.

Through reading, children have the opportunity to explore different worlds, meet captivating characters and get involved in engaging narratives. This contact with literature helps to develop language skills, expand vocabulary, improve comprehension and stimulate creativity (BERNARDINO; SUAIDEN, 2011, p. 138).

To this end, the school library also contributes to children's cognitive development.It offers educational resources, such as textbooks, encyclopedias, atlases and research materials, which support learning in various areas of knowledge. Children can explore these resources, search for information, learn about specific topics and develop research skills.This stimulates critical thinking, analytical skills and the search for knowledge Freitas and Silva (2014, p. 128).

The school library also plays an important role in children's social and emotional development.

It is a space where they can interact with their peers, share reading experiences, participate in book clubs and group activities. These interactions promote socialization, respect for others' opinions, expression of ideas and building friendships. In addition, the library can address themes relevant to emotional development, offering books that address issues such as self-esteem, diversity, resilience and emotions, helping children to understand and manage their feelings Freitas and Silva (2014, p. 128).

"Libraries should be aware of cultural, social and economic changes in the community and develop services that are flexible enough to adjust to these changes." (GILL25, 2001 apud SILVA; SABBAG, 2019, p. 5)

Another key aspect is the stimulation of autonomy and the ability to make decisions.

The school library allows children to choose the books they want to read, according to their interests and preferences. This autonomy in choosing reading materials develops a taste for reading and encourages children to explore different literary genres. In addition, children can engage in activities such as storytelling, role-playing and creative projects, stimulating their imagination and expression skills Weitzel (2002).

The library plays a key role in children's education by providing an environment conducive to the development of reading, writing, research and critical thinking skills. It provides access to a variety of educational and literary materials, stimulates the love for books and promotes the formation of competent readers from childhood Freitas and Silva (2014, p. 128).

One of the main contributions of the library in teaching children is to encourage reading.

By providing a wide selection of children's books, fairy tales, adventure stories, poetry and other literary genres, the library arouses children's interest and curiosity in reading. They have the opportunity to choose books according to their interests and reading levels, which promotes the development of textual comprehension, vocabulary and imagination (FERNANDEZ; MACHADO, 2015, p. 168).

In addition, the library also contributes to the teaching of writing. By offering books that feature different writing styles, text structures and literary genres, children can broaden their language repertoire and develop their creative writing skills. Reading literary works also inspires children to explore their own written expression, encouraging creativity and the development of authentic writing (FERNANDEZ; MACHADO, 2015, p. 168).

Another important aspect is the library as a space for research and discovery.

It offers resources such as encyclopedias, reference books, magazines and digital materials that help children search for information on different subjects. By conducting research in the library, children learn to select reliable sources, interpret and analyze information, and develop critical thinking skills. This process strengthens children's ability to solve problems, form informed opinions and expand their knowledge (FERNANDEZ; MACHADO, 2015, p. 168).

The library also plays an important role in developing information literacy. It teaches children how to use the library catalog, how to locate and use search resources, and how to evaluate the reliability of the information they find. Children learn to become conscious and ethical users of information, acquiring skills that will be valuable throughout their lives (VERGUEIRO, 1997a, p. 4).

In addition, the library can be a space for meetings and activities related to reading, such as storytelling, book clubs, literary events and creative workshops.

These activities promote interaction between children, the sharing of reading experiences and the expression of ideas. The library can also receive visits from authors, illustrators and literary professionals, further enriching children's experience with books (FREITAS; SILVA, 2014).

The library plays an essential role in teaching children, providing a stimulating environment for reading, writing, research and critical thinking. It promotes the formation of competent readers, develops research skills and information literacy (SILVA; SABBAG, 2019).

III. RESEARCH METHOLOGY

The present article was a study of bibliographic review of exploratory character. Addressing (The school library as a space of pedagogical actions). To constrict this material, some steps were taken into account such as: Choice of bibliographies; analysis of each bibliography; study of the selected material; elaboration of the basic writing of the article and conclusion of the study.

This is a bibliographic review study, the data were collected in the SCIELO, VHL and LILACS bases, articles published in the period from 2018 to June 2023 related were included in the study. One of the main characteristics of the library is its potential to encourage reading and a taste for books.

Bibliographic research is an essential component in the development of knowledge in various academic areas, it consists of the process of screening, selecting, analyzing and interpreting bibliographic sources, such as books, scientific articles, theses, reports and other documents.

IV. RESULTS AND DISCUSSION

In view of the results obtained from this research, PIMENTEL (2007, P.25) presents a field, but mature on bibliographic research, states that "In this sense, the school library should not only be a space for pedagogical action, serving as support for the construction of knowledge and support for research. " From this reflection, he understands that the library also plays an important role in promoting inclusion and diversity, it offers materials that represent different cultures, perspectives and experiences, contributing to the formation of tolerant, empathetic and aware students of differences.

In short, the school library plays an essential role in students' learning and development. It promotes reading, provides access to information, develops research skills, stimulates creativity and promotes inclusion and diversity. The presence of a well-structured and up-to-date school library is fundamental to provide quality education and to train critical, creative and well-informed students.

The library is a welcoming environment where all students can feel represented and valued. It is of great importance to emphasize that the school library plays an essential role as a valuable support resource for education professionals (FREITAS; SILVA, 2014). It offers a variety of services and resources that complement and enrich the work done in the classroom.

By becoming a place of reference and collaboration, the library contributes to improving the quality of education in a significant way. One of the main benefits of the school library for education professionals is access to a wide range of educational materials.

This includes textbooks, encyclopedias, magazines, journals, digital and multimedia resources. These materials are carefully selected to meet curricular needs and different areas of knowledge. Educators can rely on the library to find up-to-date information, bibliographic references and relevant resources for planning their lessons (FREITAS; SILVA, 2014).

In addition, the school library supports pedagogical practice. Education professionals can use the library space to conduct research, seek new methodologies, explore innovative approaches and deepen their knowledge in specific areas. Librarians, in turn, play a key role in assisting educators in the search for appropriate materials, providing research guidance and offering support in the use of technological resources (FERNANDEZ; MACHADO, 2015, p. 168).

The school library also promotes the training and professional development of educators. Through lectures, workshops and training, professionals have the opportunity to improve their skills, learn new teaching strategies and update themselves on educational trends. These activities contribute to the continuous improvement of pedagogical practice, encouraging reflection and sharing of experiences among education professionals (SILVA; SABBAG, 2019).

According to Milanesi (1989, p. 15), another relevant aspect is the role of the school library in promoting diversity and inclusion. Through the careful selection of materials that represent different cultures, identities and perspectives, the library contributes to the formation of critical awareness and respect for diversity. Education professionals can use these resources to address sensitive topics in the classroom, promoting dialogue and mutual understanding among students.

In addition, the school library also encourages collaboration and teamwork. It becomes a meeting place where educators can share ideas, experiences, resources and good practices. Through informal discussions, study groups and collaborative projects, education professionals strengthen each other, developing a learning community that benefits both educators and students. The school library plays an essential role in supporting education professionals. It offers educational materials, research support, training, promotion of diversity and inclusion, as well as encouraging collaboration and teamwork (SILVA; SABBAG, 2019).

The function of the public library is precisely to promote free access to information, seeking an integration between society and this information made available by it. Its role is not only to make information available, but to

promote services that encourage the use of this information and that awaken in each one the pleasure of reading.

Given this, the need to work with children within the school library involves several strategies to stimulate the love of reading and promote active interaction with books. Some ways to work with children in the library include: Encouraging a love of reading through read-aloud sessions and book discussions, creating an attractive and welcoming environment with organized books and comfortable reading areas.

Developing interactive activities such as games, creative challenges and artwork exhibitions, stimulating curiosity and research by teaching children to use the library catalog and explore different sources of information.

Promote creative expression through writing, illustrating and dramatizing stories, involve the community by inviting authors, illustrators and community members for visits and lectures. These strategies aim to create a stimulating and engaging environment where children can actively explore books, develop research skills, express their creativity and strengthen their connection with reading.

Finally, the school library also plays a very important and fundamental role as a positive point in the formation of readers and the mediation of reading projects. It can develop projects that involve the entire school community, such as shared readings, literary marathons and book discussion groups. These actions strengthen the school's reading culture, stimulate dialog among readers and promote the exchange of ideas and experiences.

V. CONCLUSION

In view of the above, the library plays a key role as a valuable pedagogical tool. It offers resources, services and an enabling environment to enrich the teaching process. By providing access to a wide variety of educational materials, promoting research, supporting pedagogical practice, training professionals, promoting diversity and encouraging collaboration.

The library becomes a primary environment for the integral growth of students. The library is not only a place to lend books, but also a center of knowledge and learning. It fosters a love of reading, helps students develop research skills, improves their critical analysis skills and promotes a taste for discovery and knowledge.

In addition, the library is a place where students can feel welcomed, inspired and encouraged to explore new intellectual horizons. Education staff benefit from the school library as it supports their pedagogical practices by providing relevant materials, expert guidance and professional development opportunities.

By collaborating with librarians and sharing experiences with other educators, they can enhance their skills, update themselves on the latest educational trends and find innovative solutions to the challenges they face in the classroom. The library is more than just a physical space, it is a living, dynamic environment that fosters creativity and imagination.

It provides students with the opportunity to explore different forms of expression, whether through reading, writing, art or role-playing. These enriching experiences contribute to the holistic development of students by strengthening their ability to communicate, problem solve and self-direct, the library's primary educational role is teaching.

The library complements the work done in the classroom, but also awakens interest in reading, stimulates research, promotes diversity, empowers professionals and provides enriching experiences for students, the library is an environment of discovery, inspiration and growth, which contributes to the formation of critical, creative and passionate individuals for knowledge.

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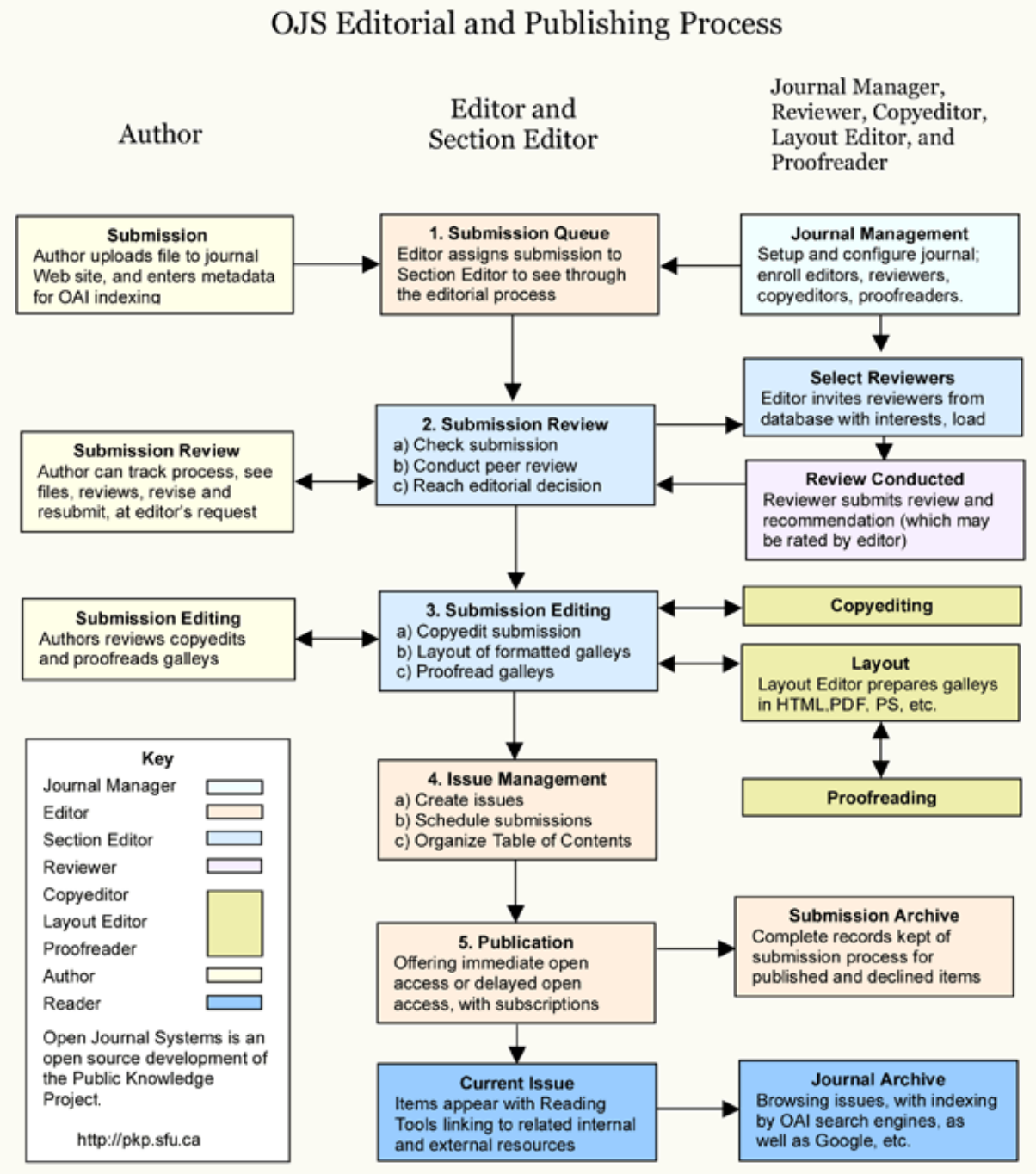

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- Semantic Scholar
- J-Gate
- Open J-Gate
- CORE-The world’s largest collection of open access research papers
- JURN
- Microsoft Academic Search
- Google Scholar
- Kopernio - powered by Web of Science
- Pol-Index
- PBN(Polish Scholarly Bibliography) Nauka Polaska
- Scilit, MDPI AG (Basel, Switzerland)
- Tyndale University College & Seminary
- Indiana Library WorldCat
- CrossRef DOI-10.22161/ijaers
- Neliti - Indonesia's Research Repository
- Journal TOC
- WIKI-CFP
- Scinapse- Academic Search Engine
- Mendeley-Reference Management Software & Researcher Network
- Dimensions.ai: Re-imagining discovery and access to research
- Index Copernicus Value(ICV): 81.49
- Citeseerx
- Massachusetts Institute of Technology (USA)
- Simpson University (USA)
- University of Louisville (USA)
- Biola University (USA)
- IE Library (Spain)
- Mount Saint Vincent University Library (Halifax, Nova Scotia Canada)
- University Of Arizona (USA)
- INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS (USA)
- Roderic Bowen Library and Archives (United Kingdom)
- University Library of Skövde (Sweden)
- Indiana University East (campuslibrary (USA))
- Tilburg University (The Netherlands)
- Williams College (USA)
- University of Connecticut (USA)
- Brandeis University (USA)
- Tufts University (USA)
- Boston University (USA)
- McGill University (Canada)
- Northeastern University (USA)
- BibSonomy-The blue social bookmark and publication sharing system
- Slide Share
- Academia
- Archive
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- ISRJIF
- Cite Factor
- SJIF-InnoSpace
- ISSUU
- Research Bib
- infobaseindex
- I2OR
- DRJI journal-repository

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