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Malnutrition in the Elderly

Escape Room for the Health Care Profressionals of Kuninkaanhaka Home Care in Pori

DEGREE PROGRAMME IN NURSING

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ABSTRACT

Malnutrition is a growing issue among elderly individuals who are being cared in care homes. This problem is aggravated by various health issues, needing a proactive approach to prevention in both service homes and the wider healthcare sector. Nurses play an important part in this attempt, as they must have extensive knowledge to properly prevent and manage nutrition among the elderly. This thesis investigates techniques for raising awareness and implementing preventive measures, with the ultimate goal of protecting the nutritional well-being of ageing adults in home care settings.

This thesis aimed to create an escape room for nurses and nursing professionals at Attendo Kuninkaanhaka in Pori to learn, identify malnutrition, and prevent it. The goal was to improve nurses' proficiency in identifying causes, learning interventions, and effective learning. This involved a thorough evaluation of existing research on malnutrition using databases like "PubMed" and "Google Scholar" to guide the creation of the escape room. The purpose was to create a high-quality escape room that guarantees learning and fun for health professionals, with the proper use of resources.

The use of the waterfall project management method facilitated the completion of this thesis. Escape room research indicates that nursing professionals require continuous training as they develop. In order to improve and expand the escape room learning technology, it is necessary to get input from students and healthcare practitioners. Expanding upon this premise and using recent research to improve nurses' escape room learning experience demonstrates a strong commitment to nursing education.

Keywords: Elderly malnutrition, Nursing intervention, Elderly care home, Geriatric nurse, Escape Room

ABBREVIATIONS

MNA- Mini Nutritional Assessment

SAMK-Satakunta University of Applied Sciences

SWOT analysis- Strength, Weakness, Opportunity, Threats Analysis

TENK-Finnish National Board of Research Integrity

Contents

1 INTRODUCTION

Malnutrition is a multidimensional notion that lacks a single definition and instead refers to a set of illnesses characterized by nutritional deficits, excesses, or imbalances. These disorders have a clear influence on body composition, physiological processes, and overall clinical results. (Saunders & Smith, 2010.)

Malnutrition is a disorder caused by inadequate food intake or absorption which results in physical changes such as lower lean body and total cellular mass (Seron-Arbeloa et al., 2022). Malnutrition can result in diminished cognitive and physical abilities, slowed disease recovery, and a variety of health issues. Elderly people are more vulnerable because of illness and difficulties with cooking or shopping, which might interrupt their normal food patterns. Malnutrition among the elderly is an increasing global problem, posing a considerable health risk. Inadequate protein and calorie intake contributes to greater infection and death rates, especially in nursing homes. Institutional restrictions and procedures frequently compound the problem, making older persons more susceptible to malnutrition. According to European studies, malnutrition causes ill health in more than 60% of the elderly, with long-term care residents being particularly affected by issues such as despair, cognitive decline, functional restrictions, and swallowing difficulties. (Minja & Jose, 2021.)

The popularity of escape rooms has increased over the last several years, and this essay examines what makes them appealing, what makes them unique, and the abilities needed to play a game. Escape rooms are fundamentally games that require players to overcome obstacles in order to win. (Wiemker et al., 2015.)

The escape room game acts as a dynamic learning tool, providing a secure setting where people can interact with simulated real-world situations worrying about unavoidable outcomes. Playing in groups of two to six, players work together to solve complex problems and find their way out of a tight spot. The game's progression is indicated by the appearance of clues, and solving a clue opens the door to the next task, creating an immersive and engaging learning environment. (Lääperi et al., 2023.)

Escape rooms encourage critical thinking and creative thinking by posing a variety of challenges to players that require different approaches to solving them. Through solving visual puzzles, classifying things, and solving mathematical riddles, participants are pushed to think outside the box and consider other viewpoints. Every escape room experience is different, challenging participants to approach problems from several perspectives and promoting an active search for information. (Wiemker et al., 2015.)

Authors created an escape room specifically for the employees of the Kuninkaanhaka Care Home in Pori, Finland. Our main focus was on Registered Nurses, Practical Nurses, and Assistant Nurses, with consideration also given to potentially involving the kitchen staff, who play an indirect yet integral role in the care process. Authors created an immersive experience with the goal of improving the abilities and expertise of the caregiving team, with the Director of Care Home, acting as our stakeholder. Even though there was no empirical evidence to support the direct impact on the residents, authors continued to believe that paying for the nursing staff's education and training would inevitably result in higher standards of care for the home's residents.

Since the authors are not native English language speaker AI app Grammarly has been used for enhancement and correction of English grammar.

2 THEORETICAL BACKGROUND

2.1 Elderly Malnutrition

Elderly malnutrition is a condition in which elderly people consume insufficient amounts of essential nutrients, resulting in a variety of physical and physiological difficulties. This multidimensional problem can present as malnutrition, excessive nutrient intake, or deficits in certain nutrients. (Dent et al., 2023.) Also, "Malnutrition in the elderly is defined as a state of insufficient nutrition caused by either a diet deficient in key nutrients or excessive consumption, which has negative health effects on the body. Elderly individuals may experience malnourishment due to a variety of factors. Cancer and liver abnormalities might reduce appetite, but Crohn's disease can interfere with healthy digestion and nutrient absorption. Age-related changes and health difficulties can also have an impact on culinary abilities and food consumption. Furthermore, physical impediments such as immobility and hearing loss might cause social isolation around mealtime, upsetting eating habits. Depression, anxiety, and eating disorders can all have a negative impact on the elderly's mood and appetite, increasing their risk of malnutrition. (Minja & Jose, 2021.)

An increasing number of health issues are occurring with greater frequency in elderly individuals who are experiencing malnutrition. These encompass vitamin insufficiencies, decreased bone density (osteoporosis), impaired immune response, and delayed wound healing or postoperative recovery. (Corcoran et al., 2019.) The elderly struggle to maintain a well-balanced diet due to limited financial resources, which limit their access to a variety of nutritious foods (Boateng & Jeptanui, 2016). Furthermore, social isolation contributes significantly to inadequate food intake since loneliness and a lack of social support typically result in bad eating habits. Usually, solitary confinement has replaced the community dinning and shared experience but this should be reminded that community dinning and shared experience is a good habit for healthy nutrition.(Björnwall et al., 2021.)

To effectively address malnutrition in elderly, a multimodel approach is necessary. Mini Nutritional Assessment (MNA) is one of the most commonly used method for the assessment of malnutrition. Hence, it must be considered as an essential step for identification of malnutrition in elderly. MNA can help the healthcare professionals to decide on the necessity of elderly, such as food recommendation and weight gain or loss. There are numerous methods other than MNA, but this model has been more widely used and has been very helpful for the healthcare professionals as well as ensures the well being of the elderly. (Ji et al., 2022.)

2.2 Nursing Intervention

Nursing intervention is an intentional activity made by a nurse to improve the health and wellness of a patient or client. These actions are guided by the nurse's professional competence and insight to generate positive results while taking into account the individual's particular needs. Nurses use these strategies to help patients feel better and facilitate their recovery process. (Aarnipuro & Immonen, 2023.) These interventions include a wide range of activities aimed at people, families, or communities, including hands-on care as well as supportive measures. They can be launched by nurses, physicians, or other healthcare professionals, all with the common objective of improving the well-being of people in their care. (Withanagamage, 2014.)

Nursing intervention is an essential component of the nursing process, in which nurses develop a comprehensive plan that includes actual treatments and actions targeted at assisting clients in accomplishing their set goals. This planning method focuses on collaborative contacts with clients, their families, and other healthcare providers. The nurse must make good decisions and solve problems effectively. There are several sorts of nursing interventions, and nurses use their expertise, experience, and critical thinking skills to determine the most appropriate intervention to meet the patient's needs. This involves counseling, referrals, advocacy, medicine administration, and minor medical

procedures; therefore, nurses play an important role throughout the patient's treatment path. (Teshome,2017.)

Nursing interventions are classified into three types based on the involvement of healthcare professionals: independent, dependent, and interdependent. Nurses have the authority to carry out independent interventions. Dependent interventions, on the other hand, require a physician's approval, whereas interdependent interventions entail the collaboration of nurses and other healthcare professionals. (Kodashima,2021.) Nurses are given the authority to conduct specific activities on their own, depending on their level of competence. Nursing assessments, as well as physical and psychological treatment, are examples of autonomous interventions. Dependent interventions, on the other hand, are therapies that are administered under the supervision of a physician, such as medical therapy. Collaborative interventions are actions carried out in conjunction with multi-professional groups to improve a patient's overall quality of life. (Withanaganage, 2014.)

Effective coordination among healthcare practitioners, particularly nurses, is critical for the timely detection and treatment of malnutrition. Working together ensures that nutritional assessment protocols, care plan development, and progress reporting are followed, which improves accessibility. Nurses interact with practical nurses to analyze and improve eating habits, while also working closely with physicians and speech therapists to address mood changes and swallowing challenges in the elderly. Dieticians give important nutritional advice, while collaboration with departments such as Nutrition Dietetics and Food Services ensures assistance and awareness when executing nutritional care plans. This collaborative endeavor highlights the significance of nursing intervention in achieving optimal healthcare outcomes. (Adeyanju, 2016.)

2.3 Elderly Care Home

Elderly Care Homes, often known as nursing homes or long-term care facilities, serve the requirements of elderly people who require continuing care. These residences are specifically designed to provide comprehensive care for the elderly who do not require hospitalization but require support with daily living duties and chronic disease management. A team of dedicated nurses and caregivers ensures residents' well-being by providing round-the clock attention and support. From assisting with everyday tasks to supervising medication administration, the personnel in these facilities are dedicated to meeting the distinctive requirements of each person in their care. (Kibtok,2022.)

Nursing home residents frequently feel a sense of security that is greater than what they would feel at home. This reassurance is derived from the proximity of caretakers, who provide crucial aid in times of need, relieving anxieties about potential situations going unreported. Nursing homes prioritize the well-being of the elderly, but it is crucial to recognize that living in such institutions presents unique obstacles. (Kariuki, 2019.)

Several projects started in the 1990s with the explicit goal of assisting elderly people who could not care for themselves. However, unlike regular nursing homes, these projects did not provide medical care. In Finland, the 1922 reform of aged care marked a substantial transition from charitable facilities to service-oriented apartments. Service house construction began in the 1960s and 1970s. (Shah & Vo, 2019.) According to the Social Welfare Act (1304/2014), Finland provides a variety of housing alternatives, as well as health care and rehabilitative facilities adapted to the needs of its elderly population (Ministry of Social Affairs and Health, 2015).

2.4 Geriatric Nurses

Geriatric Nurses, who are highly qualified registered professionals, provide important healthcare support to the elderly. The term "geriatrics" first appeared in the 1940s, and geriatric nursing has since evolved to accommodate the special demands of aging populations. These nurses play an important role in geriatric care, helping patients maintain their quality of life through medicine administration, treatment plan preparation, and regular vital sign monitoring. They also work collaboratively with many healthcare teams to ensure comprehensive treatment plans and allow the flow of patient information and resources. Whether seniors live at home or in assisted living facilities, geriatric nurses have a thorough awareness of the aging process and offer empathic, individualized care to improve their well-being. (SenOcare, 2023.)

Higher education institutions in this system are classified into two types: universities and universities of applied sciences. The University specializes in scientific research and offers bachelor's, master's and postgraduate degrees. Universities of applied sciences offer practical education that is geared to the needs of business, including degrees for registered nurses and midwives. Both sorts of institutions do not charge tuition. Students in the healthcare field frequently pursue school part-time, juggling studies with employment and family responsibilities. Employers prefer schedule flexibility. At universities of applied sciences, aspiring nurses can choose between three pathways: bachelor of nursing (3.5 years), public health nursing (4 years), and midwifery (4.5 years), all of which exceed European (EU) criteria. Public health nurses and midwives, who are also registered nurses, often work in healthcare settings, although registered nurses are more likely to work in hospitals. (Ensio et al.,2019.)

Practical nurses are valuable healthcare workers who can conduct a variety of tasks on their own. Individuals must finish a 180-ECTS credit upper secondary education program, which includes 50 ECTS credits of training, in order to qualify. This can be accomplished in two to four years through vocational institutions, apprenticeships, or competency-based certificates. Practical nurses

work with people of all ages and specialize in areas including nursing and care, emergency care, rehabilitation, and senior care. They are responsible for promoting client health, planning and evaluating treatment, and collaborating in interdisciplinary teams. The occupational qualification was created in partnership with the National Board of Education and industry partners. (Ensio et al., 2019.)

2.5 Escape Room

An escape room is like a real-life puzzle game in that a team must work together to solve difficulties and escape from a closed room within a defined time frame. To win, players must solve several puzzles dispersed throughout the chamber in order to crack codes, read clues, and open hidden compartments. The difficulties are initially hidden and must be uncovered by solving the first puzzles. It's a frantic race against time that demands teamwork, inventiveness, and quick thinking to win. Escape rooms, which are rapidly gaining popularity, are immersive game experiences in which participants must solve puzzles to win. Originally based on difficult riddles, these rooms have evolved into completely fascinating settings with captivating objects and spectacular effects. (Wiemker et al., 2015.)

Escape rooms provide a wide range of puzzles, including logical, mathematical, and analytical problems, as well as sensory activities and unusual conundrums that require creative solutions. These games, designed for groups of family, friends, or colleagues, provide amusement as well as a platform for honing a variety of talents. Participants practice analytical thinking, observation, organizing, and effective communication while also encouraging critical thinking, creativity, and teamwork. Finally, escape rooms offer an immersive experience that fosters collaborative problem-solving skills and interpersonal relationships. (Heikkinen & Shumeyko, 2016.)

The use of game dynamics in teaching provides several benefits. It motivates and engages students, making learning more pleasant. Educational content is more enticing, piquing nurses' curiosity and attention. The participatory aspect of games encourages active learning, which leads to higher comprehension and retention of information. As nurses become more engrossed in the learning process, their concentration improves, resulting in better performance. Collaborative gaming also encourages nurses to work together. Finally, gaming activities improve strategic and logical thinking abilities in a pleasant and practical manner. (Rodríguez-Henche et al., 2023.)

3 PURPOSE AND OBJECTIVES

The purpose of this project thesis is to develop an escape room, to ensure learning, for the health professionals in Attendo Kuninkaanhaka.

Objectives

- Enhance the nurse's proficiency in identifying causes, learning interventions for Malnutrition, and effective utilization of learning.
- Develop a quality escape room ensuring learning and fun for health professionals, with proper use of resources.

Project tasks

1. Proper literature research
2. Outline of the escape room games.
3. Required objects, list.

4 PROJECT IMPLEMENTATION

4.1 Target group

The thesis project focuses on a diverse group of healthcare professionals employed at Attendo Kuninkaanhaka, including Nurses, Practical nurses, and Healthcare assistants. These dedicated personnel have important roles in providing care for the elderly at the organization's facilities. Regardless of whether they have permanent or temporary positions and mostly communicate in English or Finnish, all the workers there are the central focus of this project which is intended to be impartial. Whilst the list of our target group specifically enlisted the workers of Attendo Kuninkaanhaka, authors have had participants from Attendo Latokartano, also situated in Pori, and alongside students from Satakunta University of Applied Sciences (SAMK), who were present at Attendo Kuninkaanhaka for their initial Clinical Practice.

Attendo Kuninkaanhaka, as the main stakeholder of the project, has a significant vested interest in its successful implementation, recognizing its potential to enhance the skills and knowledge base of its staff members. The elderly residents are the ultimate beneficiaries of this initiative since their well-being and quality of life rely on the expertise and dedication of the healthcare professionals who provide them with care.

4.2 Methodology

The waterfall model is a traditional and long-standing software development methodology known for its linear and sequential approach. It involves progressing slowly through discrete stages, like the flow of a waterfall. (Andersen Berg, 2023.)The genesis of this paradigm may be traced back to the publication of Dr. Winston W. Royce's article, "Managing the Development of Large Software Systems," in 1970 is divided into five management phases, listed as Requirements, Design, Implementation, Verification, and Maintenance (Sherman, 2015).

The below authors discuss the examination of each phase in detail, providing a concise explanation of the actions that take place in each stage (Laoyan Sarah, 2024).

- Requirements Phase: In this first stage, the project team gathers and documents all the requirements and demands for the project. The emphasis is placed on comprehending the project's extent, goals, and limitations. Obtaining feedback from stakeholders is essential to ensure that there is agreement and compliance with expectations and standards. (Thesing et al., 2021.)

- Design Phase: The design process begins after the project has obtained the necessary requirements. At this stage, the team formulates an all-encompassing strategy based on the collected needs. This plan provides a detailed description of the project's structure, elements, processes, and connections. The objective is to provide a comprehensive plan that directs the implementation of the project. (Thesing et al., 2021.)

- Implementation Phase: During the implementation phase, the project plan is executed. The team begins the implementation of the project in accordance with the design produced in the preceding phase. Assignments are made, resources are distributed, and work advances in accordance with the project timetable. The implementation phase entails transforming the design into concrete deliverables. (Thesing et al., 2021.)

- Testing Phase: During the testing phase, which occurs after the implementation is finished, the project undergoes a process of confirmation. The primary objective of this stage is to conduct rigorous testing and validation of the project to guarantee that it adheres to the defined standards and operates flawlessly. The purpose of testing operations is to detect and resolve any problems or inconsistencies. The objective is to validate that the project adheres to quality criteria and achieves its stated objectives. (Thesing et al., 2021.)

- Maintenance Phase: Once the project has been delivered and is being used, it transitions into the maintenance phase. Here, the emphasis is placed on altering, enhancing, and resolving any problems that occur throughout the functioning of the system. Obtaining feedback from

stakeholders and end-users is crucial for identifying areas that might be improved. The maintenance phase guarantees the ongoing effectiveness of the project and its ability to consistently satisfy the requirements of its stakeholders. (Thesing et al., 2021.)

4.3 The stages of the project

Stage 1 included the team researching the subject from August 28, 2023, to December 15, 2023, utilizing databases and papers. From December 15, 2023, until December 30, 2023, Stage 2 entailed careful planning and acquiring all relevant information, including a room layout and SAMK authorization. On a firm basis, Stage 3 began on January 1, 2024, implementing theoretical notions and the room layout until January 30, 2024. Stage 4 began on February 1, 2024, and the room was tested until March 6, 2024. Stage 5, commencing March 15, 2024, entailed delivering the finished product to the customer with a detailed report on the project's progress and results. Alongside, the final file to be submitted by April,2024

Table1: Timetable of the project according to the Waterfall Methodology

Waterfall model Stages	Task	Date
Requirements	Identify and get acquainted with the subject matter, such as research databases and publications.	28.08.2023-15.12.2023
Design	Planning and collecting all the information, development of room plan, permission from SAMK	15.12.2023-30.12.2023
Implementation	Implementation for the theory and blueprint of the room.	01.01.2024-30.01.2024
Testing	Trials of the room with feedback	01.02.2024-06.03.2024
Maintenance	Submission of product to client. Final report prepared.	07.04.2024-01.04.2024

4.3.1 Requirement (Phase1)

The project requirements are collected and recorded. It entails comprehending the requirements of the final users and stakeholders in order to establish the extent of the project. (Aroral, 2021.) During this phase, the authors established the boundaries, goals, and requirements of our project. In addition, the authors developed a comprehensive plan that precisely detailed the specific activities, dates, and resource requirements essential for the project. In order to streamline our development, authors have defined the precise benchmarks of achievement and time limitations for crucial goals. The consequences include the generation of riddles, the development of room designs, and the conduct of tests.

4.3.2 Design (Phase 2)

The project base is developed according to the requirements collected during the preceding step. This includes the development of project requirements, data collections, and the overall project base. (Aroral, 2021.) Thematic elements and designs, intricate puzzles, and strategic room layouts were used to provide a captivating escape room experience. In addition, the authors established the specific technical criteria for the essential technology and equipment and actively solicited feedback from possible participants to enhance the design to fulfil the client's expectations. The original approach is provided in Appendix 2.

One of the main important phase of the thesis project is design phase. Develop a quality escape room ensuring learning and fun for health professionals, with proper use of resources and enhance the nurses proficiency in identfying causes, learning interventions for malnutrition, and effective utilization of learning were the main goal of the authors thesis for the healthcare professionals of Kuninkaanhaka Home Care in Pori. To ensure good participants involvement and enjoyment it was essential to have characterizied literature review and standarized project planning which maximized the learning outcome of the participants and alongside was beneficial for the elderly.To

ensure the complete development of the design phase to stay and updated about the current knowledge base, the authors did data collection from various reliable sources such as PubMed, Google Scholar, Google Search, Theseus, ResearchGate and ScienceDirect. The search for the complete literature was conducted by using suitable keywords such as "Elderly Malnutrition," "Nursing Interventions," "Elderly Care Home," "Geriatric Nurses," and "Escape Room". The authors has presented the literature retrieval process in tabular format in Appendix 4 which was done according to the literature review standard requested from the university the literature review was divided into two categories by the authors into inclusion and exclusion criteria which is shown in the below table.

Inclusion and Exclusion Criteria

While doing a literature review certain criteria is needed to have evidence-based practice which can be called selection criteria. This selection criteria helps the authors to decide what and which kind of literature articles, books, and journals can be used and which is not used in the literature review. The selection criteria include inclusion and exclusion criteria. Inclusion criteria means including the certain types of studies including certain criteria as well as including those filtered articles. Whereas, exclusion criteria means disqualified articles filtered databases in literature review. Exclusion criteria is also excluded by not using a filter, the author need not select a particular literature article if not necessary for the author's research. The following shows the tabular form of inclusion and exclusion criteria decided by the authors. (University of Missouri-St.Louis,2023.)

Table 2: Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Peer-reviewed article	Non-peer reviewed article
Time Span: Within 10 years range	Time span: More than 10 years
Medical journal, articles	Non-medical journals, articles
Free to use	Cost burden or requires fees
Articles in English and or Finnish	Articles in other languages

4.3.3 Implementation (phase 3)

Implementation is the next phase after the design phase which includes the creation of a written layout or a planned layout, in a materialistic format (Aroral, 2021). Once the drafted design was formed and the plan looked concrete. The idea was developed with great enthusiasm and dedication by the authors into a materialistic format so that the project could officially begin. Throughout the development process, every detail was taken into consideration, such as the decoration of the room, what material was needed, and what kind of material was needed. The authors were dedicated towards the quality development of the project more than quantity with the motive of having precision and validity in the project. In order to ensure responsibility and advancement, authors have established a system of regular progress assessments, enabling authors to swiftly detect and remove any possible hindrances. By adhering to this methodical strategy, authors not only guaranteed the timely accomplishment of tasks but also maintained the elevated benchmarks of excellence and skill that were crucial to the success of our project.

4.3.4 Testing (phase 4)

After the implementation is finished, the project undergoes testing to verify that it fulfills the required criteria. This encompasses a range of testing methodologies. (Aroral, 2021.) Following the completion of the implementation, the authors went to the testing phase. An extensive analysis was conducted using feedback forms to identify and address any issues, ensuring a smooth and enjoyable experience for our players. Obtaining input from a select group of test participants was crucial in making the necessary adjustments before our ultimate release.
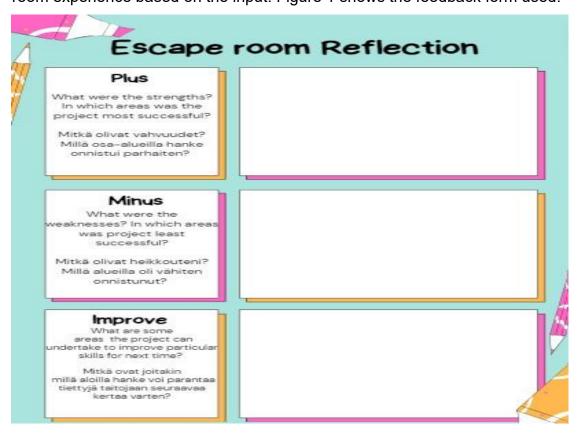
4.3.5 Maintenance (phase 5)

The last phase is implementing the project for the users and upholding its functionality while resolving any post-deployment difficulties that may develop (Aroral, 2021). The result of the author's efforts marked the formal beginning and following the progression of events after the launch. By paying careful and thorough attention to every aspect, the authors carefully planned and executed a successful transition for our clients, guaranteeing that their experience with our product was particularly straightforward. As part of this period, authors carefully created a thorough guiding document, referred to as "ohjeet," which extensively outlines every component of the product and how it should be used. This paper functioned as a source of support, offering clients the essential direction and help to manage any possible issues or inquiries they could have. With our steadfast dedication to achieving the highest standards, authors want to enable our clients to begin their journey confidently and effortlessly, cultivating a long-lasting and significant connection with our product.

5 EVALUATION

5.1 Evaluation of project and product

Evaluation is the systematic collection of factual data and contextual information about an intervention programme. It aims to answer questions regarding what, who, how, if, and why, in order to evaluate the program's development, execution, and effectiveness. (Chen,2015.)During the early phases of our escape room project, authors actively collaborated with our supervising teacher at SAMK to get useful insights and comments. In addition, authors have included a feedback form to collect complete information from players after each gaming session. Throughout three tests, each consisting of six participants, authors saw significant levels of involvement and excitement, resulting in the identification of a single winner in each session. The feedback form was intentionally crafted to gather insights and comments from players after their completion of the whole game, enabling us to improve and enhance the escape room experience based on the input. Figure 1 shows the feedback form used.

. Figure 1: Feedback form

The filled feedback form received from the participants has been attached in Appendix 2.

Consequentially, the authors acknowledged the need to implement a thorough risk management strategy to guarantee the success of our project. The authors identified many possible hazards and devised appropriate tactics to successfully minimize their impact. These issues were tackled by setting precise timetables and implementing contingency plans to anticipate and overcome failures caused by time limits. To address the resistance to change, especially among healthcare staff who are not acquainted with the notion of using escape rooms for educational reasons, authors carried out thorough preparatory work and pretests. Additionally, the authors provided advance briefings to the participants. In addition, the authors included interactive and compelling elements into the escape room games to heighten involvement and interest for example our last stage had a Kimble game playing stage, hence authors bought a fictional character Kimble board game, which enhanced the enjoyment of the participants. In addition, to mitigate any prejudice, the authors ensured objectivity and impartiality by consulting numerous sources of information, soliciting opinions from colleagues or experts, and transparently addressing any conflicts of interest. Additional elements that posed potential risks, including financial limitations, ethical considerations, and receiving required approvals from SAMK, were effectively managed by implementing strategic budget planning, adhering to ethical norms, and acquiring the necessary permits before proceeding with the project.

Considering the risk management tactics applied by the authors, an analysis was also done for better authentication of the entire project. The analysis is called Strength, Weakness, Opportunity, and Threats Analysis (SWOT analysis), which enables the authors to create a standardized structure that helps authors to create an idea about advantages, disadvantages, possibilities, and hazards, that could be collateral to the project. (Mercieca et al., 2016.) Figure 2 shows the SWOT analysis created by the authors.
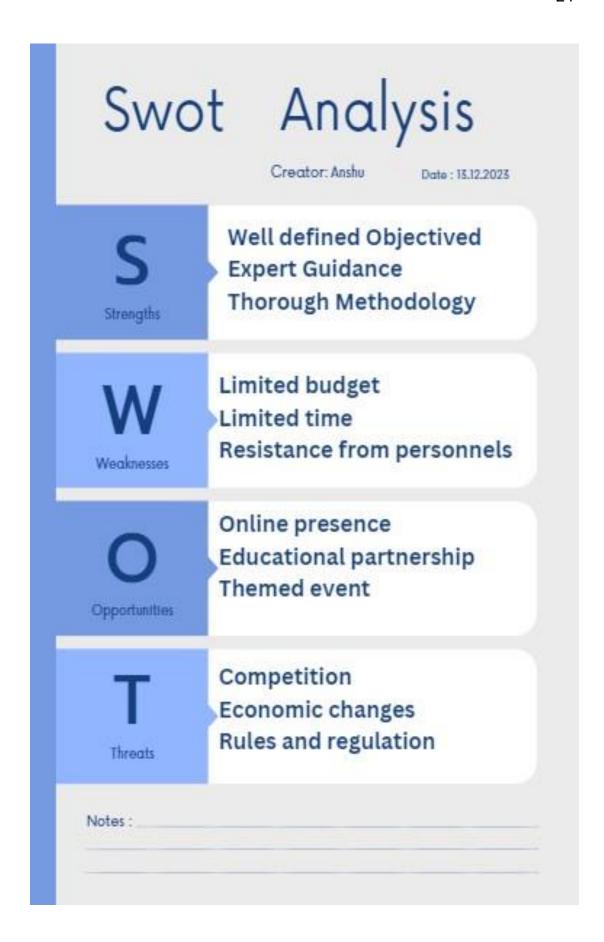
Swot Analysis

Creator: Anshu   Date : 13.12.2023

S Strengths
Well defined Objectived
Expert Guidance
Thorough Methodology

W Weaknesses
Limited budget
Limited time
Resistance from personnels

O Opportunities
Online presence
Educational partnership
Themed event

T Threats
Competition
Economic changes
Rules and regulation

Notes :

Figure 2: SWOT analysis

Alongside the SWOT analysis authors also visualized the necessary resources needed for upgrading of the escape room project and implementing them. The authors have tried to develop the project as evidence-based project as much as possible by revising through various online databases such as "PubMed", and "Google Schoolar", which strengthened the authors to remain updated about recent researches on malnutrition and escape room requirements. Alongside physical resources as in materials used in the project, personal resources for the authors that included feedback from participants and documentation of events in personal diary. The financial resource was provided to the authors by the stakeholders, hence, it was crucial to remain transparent and efficient. With all the resources, risk assessment and management, the project was completed delightfully.

5.2 Ethical Considerations

Extensive revision through the National Board on Research Integrity (TENK) ethical guidelines and SAMK's thesis ethics guideline helped the authors to create an ethical perspective for the authors that was premedicated and prioritized throughout the project stages, beginning from literature retrieval to product launch and file writing (TENK, 2023). The following ethical considerations were agreed upon and implemented:

1. Respect for Autonomy: As the escape room was being developed, testing sessions were conducted before the final product was launched. Participants were asked to evaluate the sessions, and verbal consent was obtained. The feedback form did not require participants to provide personal details, and their choice to not give feedback was respected. Additionally, scenarios were developed while upholding the dignity of the elderly age group.

2. Honesty and Transparency: Transparency and honesty were maintained with the unit providing financial resources for the development of the room. Clear communication and integrity were ensured throughout the

game among nursing professionals. The literature review was conducted ethically by accessing trusted databases and referencing original authors to strengthen the study's results.

3. Reliability: Reliability in research maintains consistency and stability in research (Jasen,2023). Ethical reliability was ensured by standardizing escape room design, and evaluation processes, and providing proper training based on an extensive literature review. Clear directions were provided, pilot tests conducted, and meticulous records were kept, including personal diaries mentioned in the thesis appendix to enhance credibility. The personal diary recorded by the authors has been provided in Appendix 3.

4. Accountability: The developers and authors maintained utmost accountability in everything that was written and done throughout the thesis process, following the guidelines provided by the National Board on Research Integrity (TENK, 2023).

By adhering to these ethical principles, the study was conducted with integrity and respect for all involved parties.

5.3 Author's point of view

The author claims that the escape room program has been quite effective since it has provided healthcare personnel with an experience that is both immersive and powerful in terms of training. A sustainable effort has been achieved because of the meticulous and complete planning and execution that has led to the outcome of an effort that not only enhances learning but also encourages the development of critical thinking skills and collaboration. The client can easily integrate the escape room into their training program, which allows them to maximize the escape room's long-term influence on staff development and

patient care. This makes it possible for the customer to get a complete advice file at the conclusion of the project.

5.4 Drawbacks

The initial trial of the escape room concept aimed at improving the knowledge and skills of aspiring nurses, displayed encouraging outcomes. Regardless, having smooth trials, the authors came across some drawbacks during the implementation phase. Arrangement of the trials was a drawback faced by authors, the elderly home some days has high demand as in for the professionsals, so to gather participants sometimes was difficult , alongside the authors did try creative wasys, such decorations and characterized games to draw the attention of participationts. The stakeholder was always ready to help for succession of the project.

Another drawback the authors faced was, that the participants at times would get competitive resulting to less challenge in the session. The drawback was solved by adding more questions, and at the end if that did not help, the uncertainity of life was put forth, as in the luck was put forward as tie breaker.

Continuous feedback and the author's endless efforts for advancements in project led to the success of the project that was developed. This ongoing process of refinement ensures that the learning experience remains current and results in tangible improvements in patient care outcomes for healthcare professionals.

5.5 Scope of further research

The field of escape room learning has a wealth of opportunities for further research and development in the years to come, providing many opportunities for future improvement. In spite of the fact that hunger has been the subject of a great deal of research, the use of escape rooms as a method of instruction has not been substantially researched. Not just in the field of healthcare

education, but also in other fields, it is possible that future research may place a higher priority on investigating the effectiveness of escape rooms in increasing learning outcomes. In addition, doing research into the capabilities of digital escape room platforms and conducting comparison analyses between the physical and digital versions of the game might potentially give substantial insights into the various strengths and limitations of each. In conclusion, the future seems to hold a great deal of promise for the continuous development and expansion of escape room learning initiatives, which have the potential to fundamentally revolutionize education and training in a variety of sectors.

5.6 Discussion

Embarking on this marked substantial progress in the research of cutting-edge teaching approaches in the healthcare industry. Our project aimed to create a highly engaging escape room activity designed exclusively for healthcare workers at Attendo Kuninkaanhaka, with a primary emphasis on the detection and management of malnutrition in elderly individuals. This project enhanced our professional growth and highlighted the crucial connection between theory, practice, and ethical issues in healthcare. It was accomplished via careful planning, study, and teamwork.

This project had an importance that went beyond just creating an escape room. It revealed new insights and potential that had not been explored before. After conducting a thorough evaluation of existing literature and clearly defining the issue, evidence-based theories were also found, which helped us develop the stages of the game. These interventions provide innovative ways to address malnutrition in older individuals who live in care homes. The escape room was designed as a complete training tool for healthcare practitioners, with the goal of addressing gaps in knowledge and practice that are typically ignored in conventional instructional methods.

In anticipation of the future, the influence of this undertaking is positioned beyond its local boundaries. Future endeavors must prioritize expanding the

distribution of the escape room experience, guaranteeing that healthcare professionals and institutions outside our original target audience can use it. The iterative structure of this project emphasizes the significance of being adaptable, continuously refining depending on user input, and aligning with emerging healthcare practices.

In essence, this project goes beyond just a personal accomplishment. It is a concrete contribution to the continuous endeavors focused on enhancing patient care in care home environments. This path has been marked by the investigation of cutting-edge ideas, cooperation with colleagues, and a resolute dedication to maintaining moral standards. This escape room program represents the fluidity of healthcare education and the continuous quest for exceptional patient care, even in the middle of the constantly changing healthcare environment.

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APPENDIX 1 (GAME PLAN)

The first level is finding the boxes filled with sand in the room. The players first pick their pairs respectively. Then the clue will be picked by players themselves.The box has 30 puzzle pieces, that after solving will help you fill up MNA form, and alongside clue for next level.

Ensimmäinen taso on löytää huoneesta hiekalla täytetyt laatikot. Pelaajat valitsevat ensin omat parinsa. Sitten pelaajat valitsevat vihjeen itse.Laatiossa on 30 palapelin palaa, jotka auttavat sinua ratkaisemisen MNA-lomakkeen ja laatikosta löytyy myös vihje seuraavalle tasolle.

Calculations
laskeminen

The second level is solving of the calculation question. The calculation is inside a box, with the code locks.The calculation is found using the clues found in the sand box. The code is the correct MNA score.

Toinen taso on laskentakysymyksen ratkaiseminen. Laskenta tapahtuu laatikon sisällä, koodilukkoineen. Laskelma löytyy hiekkalaatikosta löytyneiden vihjeiden avulla.Koodi on oikea MNA-pisteesi.
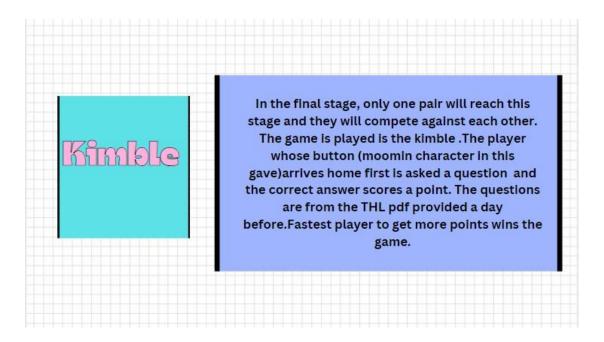
Figure 3: Game plan PowerPoint slides

APPENDIX 2 (FEEDBACK)

There were 18 feedback form received from the participants, however authors have uploaded 3 of the feedbacks received from each gaming session.
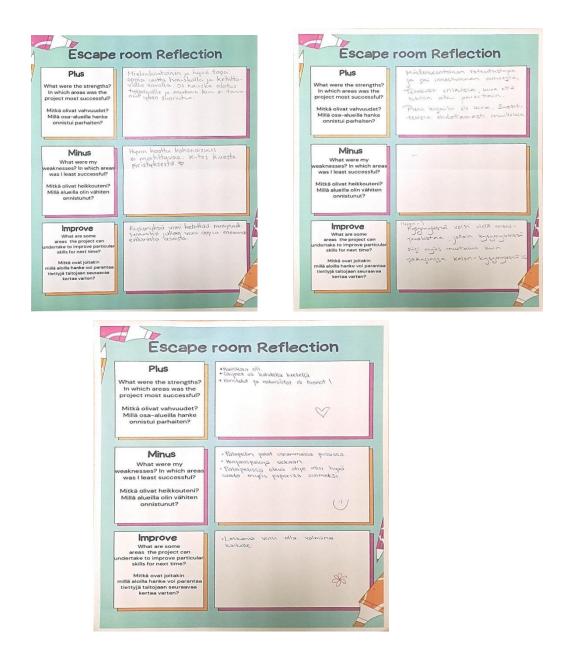

Figure 4: Feedback forms received from participants

APPENDIX 3 (PERSONAL DIARY)

- 21.08.2023 - Thesis course started

- 21.11.2023 - Thesis (research thesis) seminar

- 22.11.2023- Thesis (project thesis) seminar

- 28.11.2023- Thesis (Literature review) seminar

- Plan and proposal preparation/ Escape room design.

- 1 week of preparation of the escape room

- 06.01.2024- The escape room 1st trial went well, and I received good feedback

- 01.02.2024- Plan made ready.

- 01.02.2024- Plan presentation day

- 01.01.2024- Plan accepted

- 28.02.2024-2nd trial, went well

- 06.02.2024-In 3rd trial, the teacher came to visit

- 07.03.2024-Start for final file report

- Submitted final file

APPENDIX 4 (LITERATURE RETRIVAL)

Table 3: Literature Retrieval

Database	Keyword	Result	Chosen
PubMed	Elderly Malnutrition Filter: Since 2014, Medical journal, Peer-reviewed.	17750	1
Theseus	Elderly Malnutrition Since 2014, Medical Journal	447	3
Google Scholar	Elderly Malnutrition Filter:2014-2024 Medical Journal	56400	1
PubMed	Elderly Malnutrition Filter:2014-2024, Free Full Text Medical Journal	9641	1
Theseus	Nursing Intervention Since 2014, Medical Journal	12040	6
Theseus	Elderly Care Home Since 2014, Medical Journal	7700	3
Google Search	Geriatric Nurse	27700000	1
PubMed	Geriatric Nurse Filter:2014-2024 Free Full Text	6270	1
Google Scholar	Escape Room Filter: 2014	1550000	2
Theseus	Escape Room Since 2014, Medical Journal	1990	1