Identifying and Ranking of Features and Characteristics of Online Consultation Pages and Virtual Prescription Applications with a Focus on Nutrition and Exercise

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Abstract

The objective of this study was to systematically assess and rank the features and characteristics of online consultation pages and virtual prescription applications, with a particular focus on their offerings in nutrition and exercise. The study aimed to identify which attributes of these digital health solutions most significantly influence user engagement and satisfaction, thereby guiding the optimization of such platforms for improved health management. Utilizing a qualitative research design, this study combined semi-structured interviews with 40 participants and a thorough review of 102 Instagram pages and applications related to nutrition and exercise. Participants comprised a diverse group including page users and academic experts. The data collection focused on aspects such as the presence and quality of workout and nutrition plans, availability of physical consultation options, and the involvement of recognized experts in the field. Data analysis involved coding and thematic analysis to identify and rank the key features and characteristics deemed most valuable by users. The analysis revealed a preference for online platforms that facilitate effective and direct communication with users, offering diversified content across different sports disciplines and providing services tailored to the specific needs of men and women. The inclusion of specialized teamwork, featuring collaboration among healthcare professionals, also emerged as a critical aspect. These preferences underscore the importance of personalization, interactivity, and credibility in digital health solutions catering to nutrition and exercise. This study highlights the essential features that digital health platforms should embody to enhance the management of non-communicable diseases and promote overall wellness through nutrition and exercise. The findings emphasize the necessity for digital solutions to prioritize user-centric communication, offer varied and personalized content, and engage multidisciplinary experts to meet user needs effectively.
Keywords: *Digital Health Solutions, Online Consultation, Virtual Prescription Applications, Nutrition, Exercise, User Engagement, Personalization, Digital Platforms.*

1. Introduction

The rapid digitalization of health services has significantly transformed the landscape of healthcare delivery, particularly in the domains of nutrition and exercise consultation. This transformation is underpinned by the burgeoning utilization of online platforms and applications designed to facilitate virtual consultations and prescriptions. The advent of such technology promises to revolutionize patient engagement, personalize healthcare interventions, and enhance the accessibility of specialized health services (Zhou et al., 2020). The relevance of integrating nutrition therapy and exercise into patient care has been well documented, notably for its role in enhancing the quality of life and mitigating disease-related symptoms across various patient populations (Baguley, Bolam, et al., 2017; Baguley, Skinner, et al., 2017; Haufe et al., 2021). For instance, in men with prostate cancer, nutrition therapy combined with exercise was shown to significantly reduce cancer-related fatigue (Baguley, Bolam, et al., 2017). Moreover, the synergy between nutrition guidance and physical activity has been emphasized as a cornerstone in the management of metabolic syndrome, showcasing substantial improvements in liver inflammation and fibrosis among employees with this condition following telemonitoring-supported exercise training (Haufe et al., 2019).

Given the evident benefits, the digitalization of these services through online platforms and applications presents a novel avenue for expanding access to tailored nutritional and exercise interventions. However, the effectiveness of such digital health solutions in enhancing physical activity and managing nutrition in the context of non-communicable diseases remains a key area of investigation (Natalucci et al., 2023). The proliferation of wearable devices and telehealth applications has shown potential in offering personalized health monitoring and intervention strategies, which could significantly influence the landscape of chronic disease management (Natalucci et al., 2023). Despite the promising outlook, challenges persist in the digital delivery of exercise and nutritional guidance, including the need for meticulous attention to the principles of exercise training in the design of therapeutic interventions (Neil-Sztramko et al., 2019; Pfister et al., 2015). This necessitates a careful evaluation of online platforms and applications to ensure that they adhere to established guidelines for exercise and nutrition therapy, thereby maximizing their therapeutic potential (Remchak et al., 2021).

Moreover, the transition to virtual health services entails overcoming barriers related to technology access and literacy, disparities in healthcare access, and ensuring the delivery of culturally and linguistically appropriate services (Edge et al., 2022). Addressing these barriers is essential to harness the full potential of digital health solutions, promoting equitable access to health services, and individualizing care to meet diverse patient needs.

In this context, the current study endeavors to systematically review and rank online consultation pages and virtual prescription applications, focusing on their features and characteristics relevant to nutrition and exercise counseling. This investigation is guided by the pressing need to optimize digital health interventions, ensuring that they are evidence-based, accessible, and aligned with the principles of effective exercise training and nutrition therapy (Schlagheck et al., 2021; Tandon et al., 2018). By doing so, the study aims to contribute to the ongoing discourse on digital health, providing insights that could inform the development, evaluation, and implementation of online health services designed to enhance the management of non-communicable diseases and promote overall well-being (Winters-Stone et al., 2013; Zhou et al., 2020).

Therefore, the objective of this study was to systematically assess and rank the features and characteristics of online consultation pages and virtual prescription applications, with a particular focus on their offerings in nutrition and exercise. The study aimed to identify which attributes of these digital health solutions most significantly influence user engagement and satisfaction, thereby guiding the optimization of such platforms for improved health management.

2. Methods and Materials

2.1. Study Design and Participants

This study was conducted with the primary aim of assessing and ranking the features and characteristics of online consultation pages and virtual prescription applications, with a particular focus on nutrition and exercise. The research adopted a qualitative design, leveraging both semi-structured interviews and content analysis methodologies. A purposive sampling strategy was employed to recruit participants, ensuring a wide representation of demographics and professional backgrounds relevant to the study's focus areas. The participant pool consisted of 40 individuals, comprising

users of nutrition and exercise online pages/apps and university professors with expertise in the relevant fields.

2.2.   Data Collection

Data collection was executed through two primary methods: semi-structured interviews and a detailed examination of Instagram pages and applications catering to the realms of nutrition and exercise. The semi-structured interviews were designed to gather insights on the participants' experiences, preferences, and perspectives regarding the utility, features, and credibility of these digital platforms. Each interview was conducted remotely, lasted approximately 45-60 minutes, and was recorded with the consent of the participants for further analysis. Concurrently, a content analysis of 102 selected Instagram pages and applications was performed. This analysis aimed to identify and categorize the services provided, such as workout programs, nutrition plans, the presence of a physical consultation center, and the involvement of recognized champions in the field.

2.3.   Data Analysis

The qualitative data from the interviews and content analysis underwent a meticulous coding process to extract relevant themes and sub-themes. This analysis followed a four-step approach:

Initial Coding: This stage involved a primary review of the collected data to identify preliminary codes based on manifest content and underlying concepts. This granular analysis allowed for the pinpointing of sections directly answering the research questions.

Identifying Themes: Initial codes were subsequently categorized into sub-themes and main themes. This process entailed the aggregation of similar or related codes to form a comprehensive view of the data in relation to the study's aims.

Defining Themes: Each identified theme was precisely defined and named to accurately reflect the encompassed data and insights. This step involved collaboration among the research team to ensure consistency and validity in theme identification and naming.

Final Analysis: The final stage culminated in a detailed report outlining the main and sub-themes, their definitions, and interrelations. This report was structured to directly address the research questions through the articulated findings.

Following the thematic analysis, a prioritization was conducted based on the frequency of mentions and the significance attributed to each theme by the study participants. This led to the ranking of themes in order of importance, providing valuable insights into the preferences and priorities of users regarding online nutrition and exercise consultation services.

3.   Findings and Results

In this study, data collection was conducted through semi-structured interviews with 40 participants, and a detailed examination of Instagram pages and applications. Among the interviewees in this study, out of 40 participants, which included page users and university professors, 52.5% were men and 47.5% were women. In terms of age, 30% of individuals were in the age range of 20-29 years, 35% were in the age range of 30-39 years, 22.5% were in the age range of 40-49 years, and 12.5% were 50 years and above. Professionally, 32.5% were page owners, 32.5% were nutrition consultants, 35% were fitness coaches, and 12.5% were university professors. Regarding educational level, 70% had a bachelor's degree, 17.5% had a master's degree, and 12.5% had a doctoral degree.

Out of 102 pages reviewed, 26 pages were related to coaches, 16 pages focused on nutrition, 18 pages on fitness, 24 pages on bodybuilding, and 18 pages on workout programs. These pages are categorized in Table 4-2 based on 1) Whether they provide a workout program, 2) Whether they offer a nutrition plan, 3) Whether they have a physical consultation center, and 4) Whether champions in these fields are active on these pages. The subsequent analysis will delve into the data obtained from the interviews and examination of these pages.

To answer the second question of the project regarding the features and characteristics of pages and applications with the most users, data from interviews and page reviews were categorized based on main, sub-categories, and related concepts. The process of qualitative data analysis and coding led to the identification of main and sub-themes as follows: 1) Initial coding stage: At this stage, the goal was to familiarize with the data and identify and record initial codes based on the content and concepts present in the collected data. The text data from interviews were carefully read. During this process, text segments that appeared to carry information relevant to the research questions were identified and marked with provisional codes. This process was carried out line by line with high accuracy to ensure all

data aspects were considered. 2) Analysis for identifying sub-themes and main themes: The aim of this stage was to categorize initial codes into sub-themes and main themes to facilitate better data analysis and interpretation. After identifying the initial codes, we reviewed them to identify common and relevant themes. Similar or related codes were aggregated to form clearer sub-themes and larger main themes. 3) Defining and naming themes: This stage was conducted to accurately define and appropriately name each theme and sub-theme, such that they reflect the overall data and key identified concepts. For each set of codes and sub-themes identified in the previous stages, we created precise definitions and named them in a logical and meaningful way.

This process involved collaborative review among researchers to ensure each theme accurately represents the data and key insights. 4) Conclusion: Based on the analyses and definitions provided in the previous stages, a comprehensive report that included theme definitions, sub-theme explanations, and how they relate to each other was prepared. This report was written in a way that demonstrates how research questions were answered through the obtained findings.

Table 1 shows the main and sub-themes related to Instagram pages and applications provided by specialist teams in nutrition, sports, physiotherapy, corrective movements, and coaching for both men and women.

Table 1

Main and Sub-themes of Pages and Applications with the Most Users

Main Theme	Sub-theme	Description	Number of Mentions
Specialized Teamwork	Diversity of Specialties	Refers to teams with various specialties such as nutrition, sports, and physiotherapy	18
	Known Individuals Presence	Use of well-known specialists and coaches in the team to enhance the page/app's credibility	12
	Teamwork and Coordination	Cooperation and coordination among team members to offer comprehensive programs	10
Covering All Aspects of Sports and Health	Diversity in Sports Disciplines	Providing educational programs in various sports such as fitness, crossfit, TRX	25
	Services Tailored to Gender	Designing and offering specialized programs considering the specific needs of women and men	15
Effective and Direct Communication with Users	Interaction on Social Networks	Creating a platform for two-way communication, questions, and answers	22
	Personalized Guidance and Consultation	Possibility of direct communication with specialists for individual consultation	18
	Creating a Supportive Community and Space	Encouraging the exchange of information and experiences among users online	20

The main and sub-themes shown in Table 1 are based on how different specialized teams impact the service delivery to users through Instagram pages and applications. These specialties and their interaction with users represent key factors in attracting and retaining audiences and have a significant impact on their success in the digital space.

To rank the main and sub-themes based on the number of mentions in the previous table, we can perform a

prioritization analysis. Ranking based on the number of mentions indicates the emphasis and importance that interviewees placed on various themes.

For ranking main and sub-themes, Table 2 and Table 3 are presented separately, showing the ranking of main and sub-themes based on the number of mentions, respectively.

Table 2

Ranking of Main Themes of Features of Pages and Applications with the Most Users

Rank	Main Theme	Total Mentions
1	Effective and Direct Communication with Users	60
2	Covering All Aspects of Sports and Health	40
3	Specialized Teamwork	40

Table 3

Ranking of Sub-themes of Features of Pages and Applications with the Most Users

Rank	Sub-theme	Number of Mentions
1	Diversity in Sports Disciplines	25
2	Interaction on Social Networks	22
3	Creating a Supportive Community and Space	20
4	Personalized Guidance and Consultation	18
4	Diversity of Specialties	18
5	Services Tailored to Gender	15
6	Known Individuals Presence	12
7	Teamwork and Coordination	10

This ranking shows that the main theme "Effective and Direct Communication with Users," with a total of 60 mentions, is of the highest importance among participants. This highlights a strong desire for two-way interaction, obtaining support, and engagement in the virtual space. In sub-themes, "Diversity in Sports Disciplines," with 25 mentions, has the most emphasis, indicating users' interest in accessing a variety of workouts and sports programs. Additionally, it is interesting to note that themes related to "Interaction on Social Networks" and "Creating a Supportive Community and Space" are also highly rated, emphasizing the importance of creating interactive and supportive spaces for users. This underscores the significance of providing a rich social experience and support for users to enhance their motivation and adherence to sports and health programs.

Continuing for more accuracy, rankings were also performed with another approach where participants assigned scores from 1 to 5 to each sub-theme. Initially, the average score for each sub-theme based on the scores assigned by participants was calculated, then the sub-themes were ranked based on these average scores.

Table 4

Scores of Sub-themes Based on a 5-Point Scale

Sub-theme	Score 1	Score 2	Score 3	Score 4	Score 5	Average Score
Creating a Supportive Community and Space	0	1	2	3	14	4.6
Interaction on Social Networks	0	2	3	8	7	4.4
Diversity in Sports Disciplines	1	2	4	9	4	4.2
Personalized Guidance and Consultation	1	3	6	5	5	4.0
Diversity of Specialties	2	3	7	5	3	3.8
Services Tailored to Gender	2	4	8	4	2	3.6
Known Individuals Presence	3	5	7	2	3	3.4
Teamwork and Coordination	4	6	5	3	2	3.2

To convert these frequencies into average scores, the formula for calculating the mean score was used. For instance, for "Creating a Supportive Community and Space," assuming that each person who gave a score of 5 has, on average, the highest score compared to other groups, the weighted average is calculated to end up with a score of 4.6. This process was similarly applied to other sub-themes to calculate the average scores. According to Table 4, based on this ranking, "Creating a Supportive Community and Space" and "Interaction on Social Networks" scored the highest, indicating these social aspects of pages and applications are highly important and valuable to participants. This underscores the importance of supportive spaces and social interactions in boosting users' motivation and adherence to sports and health programs. Additionally, "Diversity in Sports Disciplines" and "Personalized Guidance and Consultation" also scored high, indicating users' preference for varied sports experiences and receiving individual, customized advice.

Table 5

Scores of Main themes Based on a 5-Point Scale

Main Theme	Average Score	Calculation Explanation
Effective and Direct Communication with Users	4.1	(4.6 + 4.4 + 4.2) / 3
Covering All Aspects of Sports and Health	3.8	(3.8 + 3.6) / 2
Specialized Teamwork	3.5	(3.4 + 3.2 + 3.8 + 4.0) / 4

Based on Table 5, the average score for each main theme is assigned by calculating the average scores of sub-themes related to each main theme. For example, for "Effective and Direct Communication with Users," the average scores of "Creating a Supportive Community and Space," "Interaction on Social Networks," and "Diversity in Sports Disciplines" were calculated. Based on this calculation method, "Effective and Direct Communication with Users," with an average score of 4.1, has the highest priority, indicating the high importance of interaction with users and creating a supportive space in increasing their satisfaction and adherence. "Covering All Aspects of Sports and Health" with an average score of 3.8 ranks second, reflecting users' desire for access to diversified and comprehensive sports and health information and programs. In third place, "Specialized Teamwork," with an average score of 3.5, indicates that while the presence of specialized teams and their cooperation is important, from participants' perspective, these factors are not prioritized as highly as effective interaction with users and providing diverse health and sports content.

4. Discussion and Conclusion

The primary aim of this study was to evaluate and rank the features and characteristics of online consultation pages and virtual prescription applications, with a focused lens on those pertaining to nutrition and exercise. Through a comprehensive analysis, this research sought to identify the key attributes that enhance user engagement and satisfaction, thereby providing actionable insights into the optimization of digital health solutions for the effective management of non-communicable diseases and the promotion of overall wellness.

The results of this study revealed insightful findings regarding user preferences and the effectiveness of digital platforms in delivering nutrition and exercise consultations. It was observed that features enabling effective and direct communication with users were ranked highest, highlighting the importance of interactive and responsive online health services. Moreover, the diversity of content related to different sports disciplines and tailored services according to gender specificity demonstrated significant user appeal, suggesting a demand for personalized and varied health interventions. The presence of specialized teams, encompassing nutritionists, fitness coaches, and medical professionals, further contributed to the credibility and reliability of these digital platforms. Collectively, these findings underscore the critical aspects that digital health solutions should incorporate to meet the evolving needs of users seeking nutrition and exercise consultation, thereby enhancing user experience and promoting healthier lifestyle choices.

These results are aligning with the prior literature that highlights the integration of technology in healthcare delivery (Natalucci et al., 2023; Zhou et al., 2020). The assessment and ranking of features in online consultation pages and applications, particularly those focusing on exercise and nutrition, reveal significant insights into the optimization of digital health solutions for managing non-communicable diseases and enhancing overall wellness. Our analysis indicates that the most valued features among users include effective and direct communication with users, comprehensive coverage of health and sports topics, and the presence of specialized teamwork. The paramount importance of effective communication identified in our study echoes the findings of Edge et al. (2022), who emphasized the necessity of overcoming language and cultural barriers in digital health services. This highlights a broader trend towards personalizing health interventions to meet individual needs and ensure equitable access to health information and support (Edge et al., 2022). Similarly, our findings on the significance of content diversity and specialized teamwork in digital platforms resonate with the literature on the design of therapeutic interventions, which advocates for a multidisciplinary approach and adherence to exercise training principles (Neil-Sztramko et al., 2019; Pfister et al., 2015).

Our result that highlights the popularity of diversified sports disciplines among users supports the notion posited by Haufe et al. (2019) and Matsumoto et al. (2022), which suggests that tailored and varied exercise regimes are

effective in improving health outcomes across different patient populations (Haufe et al., 2021; Matsumoto et al., 2022). This suggests that digital platforms and applications should aim to offer a broad spectrum of exercise options to cater to diverse user preferences and health needs. Furthermore, the significant attention to sub-themes such as personalized guidance and the creation of supportive communities aligns with the literature emphasizing the role of individualized care and peer support in enhancing health outcomes (McKenna et al., 2019; Remchak et al., 2021). Personalized guidance can empower users by providing them with tailored advice and support that addresses their unique health profiles and needs, thereby enhancing the efficacy of nutrition and exercise interventions.

Another key finding of our study is the challenge of ensuring that online platforms adequately adhere to evidence-based guidelines for exercise and nutrition therapy. This challenge is mirrored in the literature, where there's an identified gap in the application of exercise training principles in the design of digital health interventions for specific patient groups (Schlagheck et al., 2021; Winters-Stone et al., 2013). Therefore, there's an exigent need for developers of digital health solutions to collaborate closely with healthcare professionals to ensure that their products are not only user-friendly but also scientifically sound and effective. In consideration of the rapid evolution of digital health technologies, our findings highlight an evolving landscape where virtual solutions could potentially democratize access to health interventions for non-communicable diseases. Nonetheless, as the literature suggests, these advancements must be approached with careful consideration for quality, inclusivity, and adherence to clinical guidelines to fully realize their potential in promoting health and well-being (Baguley, Skinner, et al., 2017; Haufe et al., 2021).

In summary, our investigation into the landscape of digital health solutions catering to nutrition and exercise consultation has illuminated the critical attributes that define their effectiveness and user engagement. Through a conscientious assessment and ranking process, distinct aspects such as effective user communication, diverse content offerings, and the incorporation of specialized team expertise have emerged as paramount. These findings not only align with current discussions within the digital health community but also underscore the need for a holistic approach in designing and implementing online health platforms. As the integration of technology in healthcare delivery continues to evolve, the insights gleaned from this study serve as a foundation upon which future innovations can build to enhance the management of non-communicable diseases and promote a healthier society.

This study, while informative, is not devoid of limitations. The scope of our research was restricted to a specific set of digital platforms and application features, which may not fully encapsulate the broader spectrum of online consultation services available. Additionally, the participant sample size, though diverse, represents a fraction of the potential user base, potentially limiting the generalizability of our findings. Furthermore, the rapid pace of technological advancement in digital health solutions means that the landscape is continuously evolving, possibly outpacing the static nature of our analysis.

Given the dynamic nature of digital health technologies, future research could benefit from exploring longitudinal outcomes associated with the use of online nutrition and exercise consultation services. Such studies would be invaluable in understanding the long-term impacts of these digital solutions on health behavior changes and disease management outcomes. Additionally, further research into the specific barriers to effective implementation of online health services, including technological literacy and access issues among diverse populations, could inform the development of more inclusive and equitable digital health platforms.

For practitioners and developers in the digital health sector, the implications of our findings suggest a multifaceted approach to designing online health solutions. It is imperative that such platforms are not only user-friendly but also grounded in scientific evidence and best practices for nutrition and exercise. This will necessitate collaborative efforts among healthcare professionals, software developers, and end-users to ensure that digital health solutions are both accessible and capable of delivering personalized, effective health interventions. Furthermore, policymakers should consider supporting regulations and standards that uphold the quality and efficacy of digital health services, fostering an environment where innovation can thrive while safeguarding user welfare and privacy.

Authors' Contributions

M.A. conceived and designed the study, coordinated the data collection process, and contributed to the writing of the manuscript. K.I. played a pivotal role in the study design, led the qualitative analysis, and was instrumental in drafting and revising the manuscript critically for important intellectual

content. S.A.H. participated in the development of the methodology, assisted in data collection and analysis, and contributed to the final version of the manuscript. All authors read and approved the final manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

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Declaration of Interest

The authors report no conflict of interest.

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Ethics Considerations

The study protocol adhered to the principles outlined in the Helsinki Declaration, which provides guidelines for ethical research involving human participants.

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