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Requirements to mHealth Applications for Animal Owners: A Narrative Review

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Abstract. A narrative literature review was conducted to determine software requirements to mHealth applications for animal owners. Results focus on securing a complete user input, providing adequately formulated information to the users and ensuring the understanding of the applications limitations.

Keywords. mHealth, telehealth, animal owners, veterinary medicine

1. Introduction

Like in human medicine, mHealth applications for animal owners may be an approach to relieve veterinarians in their daily work, for example when supporting owners in determining the need of their animal(s) to be seen by a vet [1]. Few research has been conducted that focuses on a technical support solution for symptom recognition and interpretation for animals, whose symptoms need to be recognized and interpreted by their owners as veterinary laypersons in the first place [2]. Existing literature about such applications is scarce and difficult to find, as there are no journals or databases explicitly dedicated to these topics available [3]. This is why a narrative review on requirements to mHealth applications for animal owners is the focus of this paper, being a first step in developing such an application.

2. Methods

A search regarding "veterinary [telemedicine/ telehealth/ mHealth/ informatics]" was carried out in Google Scholar by the author of this paper. The inclusion criteria were ex- or implicitly stated requirements, in German/English language and availability in full text. Publications laying focus on system implementations, ethical/legal/financial aspects, monitoring, specific animal species, concrete veterinary specialties, restricted geographic areas or perceptions/ education of veterinary students were excluded from the review. Duplicates were eliminated and a title/ abstract followed by a full text screening of the most relevant publications were performed. A reference search within all included publications and a review of all telehealth guidelines of veterinary organizations mentioned in one of the full text reviewed publications were carried out. Finally, requirements for implementation were extracted, classified, and summarized.

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3. Results

11 out of the 62 publications reviewed in full text were included in the final analysis. The requirements of particular importance (ordered descending by the number of papers mentioning) are: (i) ensure complete information input by the user [3]; (ii) display a prominent disclaimer about application limitations [4]; (iii) make and display everything in a simple way to facilitate understanding [5]; (iv) display an (emergency) vet contact [6]; (v) use terminology adequate to the user's knowledge [7]; and (vi) display a hint to talk about the application usage with the vet [6].

4. Discussion

So far, there is little specific advice on the implementation of mHealth applications for animal owners. The results reveal that the design of the user interface is crucial. Perhaps this is even more the case than in similar human medicine applications, in order to avoid reporting biases of owners trying to apply their life-learned mental human illness models to the animal. The main limitation of the results, however, is the possible introduction of bias by only one reviewer. Google Scholar was selected as search database in order to draw from an extensive and interdisciplinary pool of publications. Nevertheless, searching in only one database may have left out some publications. Quite broad search terms have been used to gather all papers relevant to the topic, but it may be the case that more specifically named publications have not been covered by the search.

5. Conclusion

Requirements for mHealth applications for animal owners have been elicited from scarce literature; additional original research needs to be carried out. Yet, it seems that veterinary medicine can still benefit from transferrable findings in human medicine specialties like pediatrics. Determining the aspects unique to mHealth applications for animal owners is part of an ongoing research that seeks to develop a successful prototype.

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