SCIENTIFIC CULTURE
www.sci-cult.com

SCIENTIFIC CULTURE, Vol. 12, No. 4, (2026), pp. 5836-5845
Open Access. Online & Print

DOI: 10.5281/zenodo.12426615

EFFECTIVENESS OF DIGITAL HEALTH TOOLS IN IMPROVING HOSPITAL-TO-HOME TRANSITIONAL CARE AMONG OLDER ADULTS: A MIXED-METHODS STUDY

Jake Tran[1]*, Rami Masadeh[2]

[1]Ph.D, MSc-CH, IIWCC-CAN, RRT Adjunct Professor, York University
[2]Nursing Department, Faculty of Nursing, Applied Science Private University

Received: 14/09/2025
Accepted: 19/03/2026

Corresponding author: Jake Tran
(jtran@torontograce.org)

ABSTRACT

Care Transition is a very critical time in terms of older adults, especially between the hospital to community and home. These transitions are accompanied by age-related physiological changes, multimorbidities, polypharmacy, and low health literacy, which predispose them to adverse events. Poor coordination of the healthcare providers, inadequate discharge planning and support of the caregivers, frequently lead to medication error, failure to adhere to the planned treatment and unplanned readmission into the hospital. Enhancing the transitional care processes will be thus necessary so as to enhance continuity of care and health outcomes in the ageing population. This study aims to explore the challenges and determinants of effective transitional care among older adults following hospital discharge and to identify strategies that improve continuity of care, patient safety, and self-management during the transition from hospital to home. Traditional study will be a cross-sectional (or mixed-methods) study among older adults aged 60 years of age and above who were recently released out of tertiary care hospitals. Structured questionnaires will be used in the collection of data; to evaluate the discharge communication, medication management, follow-up care, caregiver involvement, and patient self-management capacity. The factors linked with the successful care transition and the decreased readmission risk will be identified with the help of descriptive statistics and regression analysis. It is anticipated that the examination will bring out deficiencies in discharge planning and interaction between the medical team and patients as well as access to the follow-ups. The results can also be used to identify the significance of the caregiver engagement, patient education, and coordinated transitional care interventions are found to enhance the outcome among the older individuals. To enhance the transitional care of the older adults, there is a need to have integrated care models, effective discharge communication, and services offered by the community. The reinforcing of these aspects can minimise unnecessary complications and hospital readmission with the improvement of the overall quality of care and self-sufficiency of the elderly population.

KEYWORDS: Transitional care, older adults, hospital discharge, continuity of care, geriatric health, healthcare transitions.

1. INTRODUCTION

Hospital-home transition is a risk period linked to lapses in the care offered to older adults and increased susceptibility to complications. Reduced physical capacity, numerous diseases, and numerous medications complicate the discharge-based recovery and increase the risk of medication mistakes and functional decline (Mortelmans et al., 2021). The purpose of transitional care programmes is to minimise such risks, although they are not always effective due to the fragmentation of health systems and the lack of full integration of digital solutions. New tools such as telemonitoring and mobile health applications offer improved continuity of care, but they are typically technology-focused and not patient-centred, raising doubts about their practical value to older adults (Kruse et al., 2017).

According to Ocaña et al. (2023), communication difficulties in the discharge, medication reconciliation, and hospital-community coordination are some of the most significant problems contributing to poor outcomes. These issues are exacerbated by poor interoperability and a lack of continuity between stages of care. Digital barriers include limited access and digital literacy, which are common among older adults (Daniels and Bonnechère, 2024). The majority of studies focus on clinical outcomes, such as readmissions, without paying much attention to patient-related outcomes, including self-management and caregiver support (Greysen et al., 2016; Olowomeye, 2025). Such a limited focus does not allow for getting a complete view of the effectiveness of transitional care and the role of digital health.

There is growing advocacy for digital health tools to address the issue of transitional care, but their application in relation to older individuals lacks evidence of their applicability and efficacy. Glisauf et al. (2025) focus on the rate at which the technology is adopted, but they do not address the interaction between these tools and socio-behavioural determinants such as health literacy and caregiver support. As a result, there is a need to conduct scientific studies that would incorporate quantitative and qualitative results and determine the multidimensional effects of digital medical interventions. It is necessary to address this gap to promote information about scalable, equitable, and patient-centered transitional care models that can reduce preventable hospital readmissions and enhance long-term health outcomes.

Although there is increased investment in digital health, there is limited evidence that these tools can actually help older people leave the hospital and find their place at home. Current literature focuses on technological feasibility or readmission rates and does not take personal, patient aspects into consideration, including self-management ability, caregiver engagement, and digital illiteracy (Fasasi, 2023; Olowomeye, 2025). Additionally, there are limited studies incorporating the combination of quantitative outcome evaluation and qualitative investigation of patient experiences (Carfora et al., 2022; McQueen et al., 2022). This gap limits insights into the functions of digital health tools within the wider socio-behavioral context of transitional care.

This paper was written with the purpose of assessing the effectiveness of digital health tools in enhancing hospital-to-home transitional care among elderly individuals. It aimed to determine prominent post-discharge issues to influence the outcomes, examine the relationship between the use of digital tools and their outcomes (patient safety, treatment adherence, and readmission risk), and the roles of caregiver engagement and self-management skills in patients in digitally facilitated care transitions.

2. METHODS

2.1. Research Approach and Design

The research philosophy used was pragmatist, which acknowledged that effective methods of approaching transitional care necessitate both objective data gathering and subjective analysis. The combination of the two types of evidence was applied through a mixed-methods cross-sectional research design, which allowed examining clinical outcomes and patient experiences, and caregiver experiences in an integrated manner (Creswell and Clark, 2018). This method was particularly suitable because the field of transitional care can be described as multifactorial and complex due to the overlapping technological, clinical, and social aspects.

2.2. Settings and Participants

The research conducted in tertiary care hospitals involved older individuals aged 60 or older who were discharged within the last 30 days. This period was selected due to the readmission and care failure risk being highest in this time (Finlayson et al., 2018). Purposive sampling was used to recruit participants who had experienced discharge in recent years. Individuals who had severe intellectual deficiency and were not supported by any caregiver were excluded to ensure that the data were reliable.

2.3. Data Collection and Measures

The data were gathered using structured questionnaires that assessed discharge

communication, medication management, access to follow-up care, caregiver involvement, self-management skills, and the use of digital health technologies, including telehealth and mobile applications (See Figure 1 conceptual framework). These domains were selected because they can capture medical and behavioural elements of transitional care, as well as factors that contribute primarily to post-discharge outcomes. The Care Transitions Measure was also introduced to provide a default and trustworthy method of determining the quality of care. The tools were chosen because studies indicate that care lapses and ineffective follow-ups translate to worse outcomes, and digital solutions can correct such issues (Kruse et al., 2017; Haga, 2020).

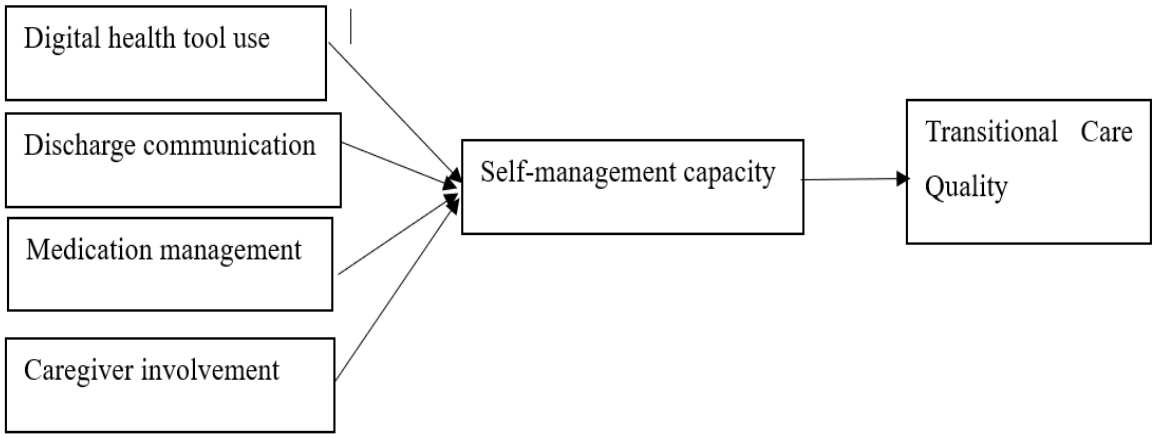

Figure 1: Conceptual Framework

To calculate a sufficient sample size, the study applied the power analysis of multivariate regression; we expected the effect size (f2 = 0.15), power (80 percent), and alpha (0.05). The analysis showed that the minimum number of participants required was 150. To understand how patients and their caregivers experience using digital health tools, the study also conducted semi-structured interviews with a purposive subgroup of patients and caregivers. Through these interviews, one gained a better understanding of usability concerns, health literacy, and other contextual considerations that influence engagement.

2.4. Data Analysis

Quantitative data analysis was done using descriptive statistics and multivariate regression to determine the factors that would be associated with enhanced care transition and decreased readmissions. Regression analysis was also selected to consider the confounders age, comorbidities, and socio-demographic factors, and gave an opportunity to isolate the impact of using digital health tools (Goldberg et al., 2024). The qualitative data analysis was based on thematic analysis, which revealed technology application, communication, and coordination of care trends. The rationale for selecting this approach is that it is flexible and allows exploring more studies involving complicated healthcare experiences and gaining meaningful insights based on the narratives of respondents (Ly et al., 2021).

2.5. Ethical Consideration

Ethical approval was obtained from the Institutional Review Board (IRB) of institution. All participants provided written informed consent prior to participation. The study adhered to ethical principles outlined in the Declaration of Helsinki.

3. RESULTS

3.1. Overview of the Results

The result of the study on the effectiveness of digital health tools in enhancing hospital-to-home transitional care for older adults aged 60 years and above who were discharged from tertiary hospitals within the last 30 days. Given the study's objectives and analytical framework, the findings are classified into descriptive statistics, comparative outcome analysis, regression analysis, and qualitative themes.

The conceptualisation framework of the current analysis positions the use of digital health tools as an enabling element of transitional care, not a standalone intervention. In this model, the use of digital health is related to a better model of discharge communication, medication management, and caregiver-assisted follow-up that, in turn enhance the self-management capacity of patients. Better self-management will result in better Care Transitions Measure scores and reduced 30-day readmission risk.

Meanwhile, age, multimorbidity and polypharmacy are contextual clinical variables that can undermine transitional care. This framework represents a socio-technical viewpoint in which technology interacts with behavioural, relational and structural processes that shape the impact of post-discharge care.

3.2. Socio-Demographic and Clinical Characteristics

The quantitative phase of the study involved 150 older adults. The average age of the respondents was 68.9 years (SD = 6.4). The majority of the respondents had two or more chronic conditions, and a large percentage needed caregiver services upon discharge. Among participants in the total sample, 92 (61.3% of the total) reported using one or more digital health tools after discharge, such as telehealth visits, medication reminders, patient portals, or remote monitoring.

Table 4.1: Socio-demographic and clinical characteristics of participants (N = 150)

Variable	Category	n	%
Age	60–69 years	78	52.0
	70–79 years	49	32.7
	80+ years	23	15.3
Gender	Male	69	46.0
	Female	81	54.0
Education	Primary or below	44	29.3
	Secondary	61	40.7
	Tertiary	45	30.0
Living arrangement	Alone	39	26.0
	With family/caregiver	111	74.0
Comorbidities	One	27	18.0
	Two to three	74	49.3
	Four or more	49	32.7
Polypharmacy	Yes	96	64.0
	No	54	36.0
Caregiver support	Yes	101	67.3
	No	49	32.7
Digital health use	Yes	92	61.3
	No	58	38.7

The demographic and clinical characteristics of the sample suggest that the population has a high need for post-discharge care. Multimorbid older adults with polypharmacy have been described as particularly vulnerable during care transitions, as well as particularly in need of more medication and follow-up support following discharge (Mortelmans et al., 2021).

3.3. Comparative Analysis of Transitional Care Outcomes

The descriptive analysis revealed that transitional care outcomes were better among participants who used digital health tools than among those who did not. To enhance interpretation, the group differences were tested using significance tests and effect sizes.

Table 4.2: Comparison of outcomes between digital users and non-users

Outcome	Digital users (n = 92)	Non-users (n = 58)	p-value	Effect size
Discharge communication score (1–5)	4.12 ± 0.61	3.41 ± 0.74	<0.001	Cohen's d = 1.07
Medication management score (1–5)	4.06 ± 0.58	3.32 ± 0.69	<0.001	Cohen's d = 1.18
Follow-up attendance	77 (83.7%)	35 (60.3%)	0.001	φ = 0.26
Self-management score (1–5)	3.98 ± 0.63	3.29 ± 0.71	<0.001	Cohen's d = 1.04
Caregiver involvement score (1–5)	3.89 ± 0.72	3.34 ± 0.77	<0.001	Cohen's d = 0.74
Care Transitions Measure (0–100)	78.6 ± 9.8	67.9 ± 11.4	<0.001	Cohen's d = 1.02
30-day readmission	14 (15.2%)	18 (31.0%)	0.021	φ = 0.19

Users of digital tools rated discharge communication, medication management, self-management, caregiver involvement, and overall transitional care quality significantly higher, as shown in Table 4.2. The effect sizes of the continuous outcomes were moderate and large, which means that the differences were not only statistically significant but also practically significant. Digital users also followed up much better, and 30-day readmission was much lower.

These results imply that the increased continuity of care following discharge was related to digital health use. Yet the differences observed cannot be taken as evidence that digital tools, in turn, produced superior results. Instead, there is evidence of a positive interaction between the use of digital tools and increased levels of communication, support, and behavioural capacity, which may explain why the

most positive results were observed among participants with higher caregiver involvement and self-management scores.

3.4. Reported Post-Discharge Challenges

Despite these positive outcomes, several post-discharge challenges remained common.

Table 4.3: Reported post-discharge challenges

Challenge	n	%
Difficulty understanding discharge instructions	59	39.3
Medication confusion/errors	54	36.0
Low self-management confidence	51	34.0
Difficulty scheduling follow-up care	47	31.3
Difficulty using digital tools	43	28.7
Lack of internet/device access	38	25.3
Limited caregiver support	32	21.3

These findings show that technology did not eliminate all challenges in the transitional care process. Issues concerning discharge education and medication management were still very significant, which is indicative of the fragile nature of care transfers among the elderly, as well as in patients with polypharmacy and multimorbidity (Mortelmans et al., 2021). Furthermore, the share of participants who reported having trouble using digital tools or being denied access to equipment and the network indicates that the positive effects of digital support were not evenly distributed. The trend indicates that digital literacy, access, and practical usability still play a vital role in determining whether technology can be integrated effectively into post-discharge care.

3.5. Multivariate Regression Predicting Transitional Care Quality

Multivariate linear regression was performed to identify predictors of improved quality of transitional care, measured by the Care Transitions Measure. Linear regression assumptions such as normality, multicollinearity, and homoscedasticity were evaluated and satisfied.

Table 4.4: Multivariate regression predicting transitional care quality

Predictor	B	SE	Beta	t	p-value
Constant	41.27	5.88	—	7.02	<0.001
Digital health tool use	6.84	1.41	0.34	4.85	<0.001
Discharge communication	4.12	0.97	0.29	4.25	<0.001
Medication management	2.76	0.89	0.21	3.10	0.002
Caregiver involvement	2.48	0.81	0.19	3.06	0.003
Self-management capacity	3.15	0.93	0.23	3.39	0.001
Age	-0.18	0.09	-0.12	-2.00	0.047
Comorbidities	-1.27	0.44	-0.17	-2.89	0.004

Table 4.5: Model summary for linear regression

R	R^2	Adjusted R^2	Std. Error of the Estimate	F	df	p-value
0.693	0.480	0.450	7.84	18.71	7, 142	<0.001

Table 4.6: ANOVA for regression model

Source	Sum of Squares	df	Mean Square	F	p-value
Regression	8042.61	7	1148.94	18.71	<0.001
Residual	8718.39	142	61.40		
Total	16761.00	149			

The quality of transitional care was predicted by the regression model with 48.0%. The positive predictor was strongest on the use of digital health tools, followed by discharge-related communication and self-management capacity. There was also a significant contribution of medication management and involvement of caregivers, and the outcome was worse associated with the increasing age and increasing burden of comorbidities. These findings suggest that technological, behavioural, relational, and clinical influences interacted to shape the quality of transitional care, rather than solely digital exposure.

3.6. Logistic Regression Predicting 30-Day Readmission

A logistic regression was conducted to identify factors associated with 30-day readmission.

Table 4.7: Logistic regression predicting 30-day readmission

Predictor	Odds Ratio	95% CI	p-value
Digital health tool use	0.46	0.22–0.95	0.036
Good discharge communication	0.58	0.36–0.91	0.021

Strong caregiver involvement	0.62	0.39–0.98	0.041
Higher self-management capacity	0.55	0.33–0.89	0.016
Four or more comorbidities	1.89	1.07–3.33	0.028
Polypharmacy	1.67	0.94–2.95	0.079

These results show that the use of digital health, discharge communication, caregiver support, and self-management decreased the risk of readmission, and the higher the comorbidity, the higher the risk. Polypharmacy provided a positive, but not statistically significant relationship with readmission, and this indicates that medication burden can be important, though its impact can be confounded by the increased ease of complexity of illness. Although a specific model of formal mediation has not been reported separately in this case, the trend of findings suggests that the concept of self-management capacity could serve as a channel through which the beneficial effects of digital health use could lead to better results during the transitional process. Stated differently, digital tools seem most valuable when they help patients comprehend, plan, and perform their post-discharge care rather than functioning as individual interventions.

3.7. Qualitative Findings

The qualitative component generated four main themes that helped explain the quantitative trends.

Table 4.8: Qualitative themes from interviews

Theme	Interpretation
Reassurance through connected care	Digital follow-up reduced anxiety after discharge
Improved medication adherence	Reminders and digital prompts helped routine medicine use
Digital literacy barriers	Some older adults struggled with apps, portals, and passwords
Caregiver mediation	Caregivers often helped operate or interpret digital tools

The qualitative results provided interpretive insights into the quantitative results. Respondents who reported positive experiences with digital health tools associated these experiences with reassurance, continuity, and assistance with medication routines. Simultaneously, the topic of caregiver mediation suggests that digital tools were commonly successful since another individual assisted the patient in using them. Similarly, the topic of digital literacy barriers can make any simple definition of digital success difficult to explain since it demonstrates that usability and access continue to be significant constraints. Overall, the findings indicate that digital health tools improved transitional care, but their effectiveness depended on the quality of communication, usability, and caregiver support and the ability of patients to self-manage. The findings therefore show that the digital health tools do not operate in isolation and work in a wider care environment, which is influenced by relational, behavioural and structural factors.

4. DISCUSSION

This study was conducted to determine whether digital health tools can enhance hospital-to-home transitional care among older adults. The results revealed that the use of digital health indicated improvement in discharge communication, medication management, self-management, and reduced risk of 30-day readmission. The general trend of findings, however, indicates a more complex interpretation than the bare statement of the better result of digital tools.

The evidence indicates that digital health tools are not independent but facilitative within a larger care system. Their efficacy seems to depend on human and structural factors, specifically the quality of communication and caregiver involvement. This is an argument against technologically deterministic assumptions and also in favour of a socio-technical view of transitional care.

A key finding in this study is the discharge communication role, which is of great importance. The group of participants with higher communication scores showed more positive transition outcomes and a reduced readmission risk. This aligns with the results of Rojas-Ocaña et al. (2023), who stated communication as one of the determining factors when it comes to safe medication reconciliation at discharge, and the results in Sun et al. (2023), where the synthesis of the results indicated that interpersonal connexion, continuity of information, and coordinated support are the key determinants of an effective hospital-to-home transition. The current results thus confirm the perspective that communication is not an isolated element of discharge, but a process in which transitional care makes sense, takes action, and stays safe.

Digital health-use and improved outcomes should also be viewed sceptically. Despite the higher follow-up attendance, better medication management, and low readmissions among digital users, better

caregiver engagement and higher self-management scores were also observed. This trend extends the findings of Rasmussen et al. (2021), who found that the transitional interventions can reduce readmission rate in situations where the follow-up and continuity is added to the model of care as the authors believe that digital tools would be the most effective when embedded into the supportive relation and structure rather than executing a single role.

Another important predictor of the quality of transitional care was medication management. This result has a theoretical significance since medication safety is among the most vulnerable elements of discharge among older adults, specifically, those with polypharmacy. Rather than indicating that digital reminders are the solution to medication-related risks, the results suggest that technology is useful only when patients are fully aware of medication changes and have the necessary support to implement them. In that regard, electronic means seem to support, instead of supplanting, the informational task of discharge planning.

The close relationship between the self-management capacity and the quality of transition and readmission is a significant contribution. The research is relevant to the literature by incorporating the clinical, behavioural and technological aspects of transitional care and showing that the ability of patients to self-manage is at the core of converting the digital use of health into better outcomes. This is in line with Steiner et al. (2025), who state that research on hospital-to-home transition should not be measured based on clinical outcomes only, like readmission, but also patient-reported ones, like preparedness, confidence, and ability to manage care after discharge.

The role of the caregivers was also identified as a determining factor. The qualitative themes indicate that the caregivers often performed the role of interpreters, organisers, and mediators of technology with older adults upon discharge. This contributes to the emerging debate in the area of transitional care that family and informal caregivers do not play a peripheral role in continuity of care but rather play a central role in the practise of transitional systems. Simultaneously, it brings about a significant contradiction, that despite the purported empowering impact of digital care, in the present case, it may require the presence of another individual who could assist in operationalising this aspect. The said complication is theoretically relevant in that it disrupts the presumption that digital tools are inevitably more autonomy-enhancing in a more direct manner.

This interpretation is further enhanced by the findings on digital barriers. A large percentage of respondents reported difficulty with digital tools or were not connected to the internet or to their devices. This does not disprove the positive relationships reported among digital users; it only shows that the advantages are distributed unevenly. In this sense, digital health can improve transitional care for certain groups of people and recreate the exclusion of others. This justifies equity-based work on hospital-to-home digital interventions, which cautions that the elderly are overly assumed to be a homogeneous population, even though significant variations in literacy, access, confidence, and social support exist (Kokorelias et al., 2022). The research, hence, not only establishes the possibility of using digital health but also shows the circumstances under which that possibility may not be actualised.

Lastly, age and comorbidity burden were also important negative predictors of improved transition outcomes. This indicates that there is no complete counterbalance between digital support and vulnerability related to multimorbidity and complicated chronic illness. A more cautious reading is thus justified: the continuity, communication and patient management capacity can be enhanced by the use of digital tools, but they do not neutralise structural clinical risk. They have a value in improving transitional processes in already responsive care systems.

5. CONCLUSION

This research shows that digital health tools have the potential to enhance hospital-to-home transitional care among older adults by improving communication, medication management, self-management, follow-up attendance, and reducing readmission risk. Nevertheless, the advantages of digital health became the most pronounced in cases when effective discharge communication, caregiver support, and sufficient patient capacity were provided to such tools. Implementing digital health must be a part of a person-centred and integrated transitional care model and not as an isolated technological solution.

6. RECOMMENDATIONS

Some recommendations are discussed based on the conclusions of this research to the clinical practise, service design, and future research.

Since, as Rojas-Ocaña et al. (2023) and Sun et al. (2023) reveal, failures in communication during hospital discharge can be linked to the development of medication-related issues, insufficient preparation levels, and less continuity between hospital and

home care, hospitals must focus on quality communication during discharge by offering clear verbal counselling, written discharge instructions, explaining the medications, identifying warning signs, and planning the continuity between home and hospital care.

Since transitional care interventions are more effective when follow-up and continuity are integrated into the care pathway, as revealed by Rasmussen et al. (2021), healthcare organisations need a structured model of transitional care that integrates post-discharge follow-up across settings.

Since Kokorelias et al. (2022) claim that most of the digital hospital-to-home interventions are designed without paying appropriate attention to the diversity, needs, and realities of older populations, digital health tools, including telehealth follow-up, reminder systems, remote monitoring, and patient portals, should be introduced in a person-centred and transition-centred way and not as a general technological solution.

Since Sun et al. (2023) identify interpersonal relationships, social support, and coordination as the primary facilitators of successful hospital-to-home transition, family caregivers should be formally included in the discharge planning, discharge education, medication counselling, and post-discharge support for older adults.

Since Kokorelias et al. (2022) further note that digital readiness and digital transition is generally designed as a homogenous group in the absence of significant differences in confidence, access, and capability, hospitals should measure digital readiness at the time of discharge, such as digital literacy, access, and availability of devices, the internet, and confidence in using technology.

Older adults and caregivers should receive practical training and continued support through the introduction of digital tools in services. Since, as Singh et al. (2022) emphasise, successful digital transition support is associated with the fit between technology, users, and tasks in care.

Since equity-focused digital health research cautions that the use of technology will inadvertently increase exclusion when services already assume universal access and ability, any healthcare system must maintain analogue channels such as telephone follow-ups, printed discharge instructions, and face-to-face review to patients who cannot or do not wish to use digital tools (Kokorelias et al., 2022).

Future studies are advised to compare specific digital transitional care methods rather than viewing digital health as a homogeneous entity, and to test the mediating effects of self-management, caregiver support, and communication on post-discharge outcomes. The latter call is consistent with Steiner et al. (2025), who argue that closer consideration should be given to patient-reported outcomes and context-sensitive intervention models.

7. LIMITATIONS

There are several limitations which should be recognised. A cross-sectional design does not allow causal inference, and self-reported measures may be prone to recall bias. Moreover, the digital health tool category is too broad, and interventions that are both usable and effective can fall within it. The research can also not represent severely cognitively impaired or deeply digitally excluded older adults. Another important limitation is that participants who utilised digital health tools might have been more motivated or more health-literate at baseline, which might partially explain the observed associations. This implies that part of the claimed advantage of using digital tools might be due to an underlying disparity in patient engagement, rather than the impact of technology itself.

8. STRENGTHS

These limitations notwithstanding, the study has several strengths. It utilises a mixed-methods design, targets a clinically relevant group of elderly individuals, and integrates clinical, behavioural, and technological aspects of transitional care into a single analytical model. It also advances the literature by demonstrating the impact of patient self-management and caregiver support on the practical efficacy of digital health during the transition period, and thus provides a more integrative perspective on transitional care than readmission-only models.

9. FUTURE IMPLICATIONS

The proposed socio-technical model should be tested in future research using longitudinal and

intervention-based designs. Specifically, research using patient-level data would need to investigate the role of self-management capacity in mediating the association between digital health use and improved transitional outcomes. Comparative studies are also required to identify which modes of digital tools work best, in which patients, and in what conditions of organisation and care-giving. In practice, the results suggest that the best model of transitional care will most likely be one that integrates technology, communication, caregiver involvement, and individualised support rather than focusing solely on digital systems.

REFERENCES

Carfora, L., Foley, C.M., Hagi-Diakou, P., Lesty, P.J., Sandstrom, M.L., Ramsey, I. and Kumar, S. (2022). Patients' experiences and perspectives of patient-reported outcome measures in clinical care: A systematic review and qualitative meta-synthesis. *PLOS ONE*, 17(4), p.e0267030. doi:https://doi.org/10.1371/journal.pone.0267030.

Creswell, J. and Clark, V.P. (2018). *Designing and conducting mixed methods research*. [online] SAGE Publications Inc. Available at: https://us.sagepub.com/en-us/nam/designing-and-conducting-mixed-methods-research/book241842.

Daniels, K. and Bonnechère, B. (2024). Harnessing digital health interventions to bridge the gap in prevention for older adults. *Frontiers in Public Health*, 11. doi:https://doi.org/10.3389/fpubh.2023.1281923.

Fasasi, G. (2023). Human-Centered Digital Model Enhancing Communication between Patients, Caregivers, and Multidisciplinary Professionals. *International Journal of Advanced Multidisciplinary Research and Studies*, 3(1), pp.1605–1616. doi:https://doi.org/10.62225/2583049x.2023.3.1.5205.

Finlayson, K., Chang, A.M., Courtney, M.D., Edwards, H.E., Parker, A.W., Hamilton, K., Pham, T.D.X. and O'Brien, J. (2018). Transitional care interventions reduce unplanned hospital readmissions in high-risk older adults. *BMC Health Services Research*, 18(1). doi:https://doi.org/10.1186/s12913-018-3771-9.

Finlayson, K., Chang, A.M., Courtney, M.D., Edwards, H.E., Parker, A.W., Hamilton, K., Pham, T.D.X. and O'Brien, J. (2018) 'Transitional care interventions reduce unplanned hospital readmissions in high-risk older adults', *BMC Health Services Research*, 18, p. 956. doi: 10.1186/s12913-018-3771-9. Available at: https://doi.org/10.1186/s12913-018-3771-9.

Goisauf, M., Cano Abadía, M., Akyüz, K., Bobowicz, M., Buyx, A., Colussi, I., Fritzsche, M.-C., Lekadir, K., Marttinen, P., Mayrhofer, M.T. and Meszaros, J. (2025). Trust, Trustworthiness, and the Future of Medical AI: Outcomes of an Interdisciplinary Expert Workshop. *Journal of Medical Internet Research*, 27, p.e71236. doi:https://doi.org/10.2196/71236.

Goldberg, N., Herrmann, C., Gion, P.D., Volker Hautsch, Hefter, K., Georg Langebartels, Pfaff, H., Ansmann, L., Karbach, U. and Wurster, F. (2024). Socio-demographic and socio-economic determinants for the utilization of digital patient portals in hospitals: Systematic review and meta-analysis on the digital divide (Preprint). *Journal of Medical Internet Research*. doi:https://doi.org/10.2196/68091.

Greysen, S.R., Harrison, J.D., Kripalani, S., Vasilevskis, E., Robinson, E., Metlay, J., Schnipper, J.L., Meltzer, D., Sehgal, N., Ruhnke, G.W., Williams, M.V. and Auerbach, A.D. (2016). Understanding patient-centred readmission factors: a multi-site, mixed-methods study. *BMJ Quality & Safety*, 26(1), pp.33–41. doi:https://doi.org/10.1136/bmjqs-2015-004570.

Haga, S.B. (2020). Toward digital-based interventions for medication adherence and safety. *Expert Opinion on Drug Safety*, 19(6), pp.735–746. doi:https://doi.org/10.1080/14740338.2020.1764935.

Kokorelias, K.M., Nelson, M.L.A., Tang, T., Steele Gray, C., Ellen, M., Plett, D., Jarach, C.M., Nie, J.X. and Thavorn, K. (2022) 'Inclusion of older adults in digital health technologies to support hospital-to-home transitions: Secondary analysis of a rapid review and equity-informed recommendations', *JMIR Aging*, 5(2), e35925. doi: 10.2196/35925. Available at: https://doi.org/10.2196/35925.

Kruse, C.S., Karem, P., Shifflett, K., Vegi, L., Ravi, K. and Brooks, M. (2019). Evaluating barriers to adopting telemedicine worldwide: A systematic review. *Journal of Telemedicine and Telecare*, 24(1), pp.4–12. doi:https://doi.org/10.1177/1357633x16674087.

Ly, S., Runacres, F. and Poon, P. (2021). Journey mapping as a novel approach to healthcare: a qualitative mixed methods study in palliative care. *BMC Health Services Research*, 21(1). doi:https://doi.org/10.1186/s12913-021-06934-y.

McQueen, R.B., Mendola, N.D., Jakab, I., Bennett, J.L., Nair, K.V., Bertalan Németh, András Inotai and Zoltán Kaló (2022). Framework for Patient Experience Value Elements in Rare Disease: A Case Study Demonstrating the Applicability of Combined Qualitative and Quantitative Methods. *PharmacoEconomics - open*, 7(2), pp.217–228. doi:https://doi.org/10.1007/s41669-022-00376-w.

Mortelmans, L., De Baetselier, E., Goossens, E. and Dilles, T. (2021). What Happens after Hospital Discharge? Deficiencies in Medication Management Encountered by Geriatric Patients with Polypharmacy. *International Journal of Environmental Research and Public Health*, 18(13), p.7031. doi:https://doi.org/10.3390/ijerph18137031.

Mortelmans, L., Elseviers, M., Van Camp, S., Van Rompaey, B. and Dilles, T. (2021) 'What happens after hospital

discharge? Deficiencies in medication management encountered by geriatric patients with polypharmacy', *International Journal of Environmental Research and Public Health*, 18(13), p. 7031. doi: 10.3390/ijerph18137031. Available at: https://doi.org/10.3390/ijerph18137031.

Ocaña, M.J.R., Morales, C.T., Pichardo, J.D.R. and Hernández, M.A. (2023). Barriers and facilitators of communication in the medication reconciliation process during hospital discharge: Primary healthcare professionals' perspectives. *Healthcare*, [online] 11(10), p.1495. doi:https://doi.org/10.3390/healthcare11101495.

Olowomeye, E. (2025). Exploring Interdisciplinary Family Medicine Approaches to Improve Chronic Disease Management and Patient Centered Outcomes. *International Journal of Research Publication and Reviews*, 6(5), pp.12378–12395. doi:https://doi.org/10.55248/gengpi.6.0525.18157.

Rasmussen, L.F., Grode, L.B., Lange, J., Barat, I. and Gregersen, M. (2021) 'Impact of transitional care interventions on hospital readmissions in older medical patients: A systematic review', *BMJ Open*, 11(1), e040057. doi: 10.1136/bmjopen-2020-040057. Available at: https://doi.org/10.1136/bmjopen-2020-040057.

Rojas-Ocaña, M.J., Teresa-Morales, C., Ramos-Pichardo, J.D. and Araujo-Hernández, M. (2023) 'Barriers and facilitators of communication in the medication reconciliation process during hospital discharge: Primary healthcare professionals' perspectives', *Healthcare*, 11(10), p. 1495. doi: 10.3390/healthcare11101495. Available at: https://doi.org/10.3390/healthcare11101495.

Singh, H., Armas, A., Law, S., Tang, T., Steele Gray, C., Cunningham, H.V., Thombs, R., Ellen, M., Sritharan, J., Nie, J.X., Plett, D., Jarach, C.M., Thavorn, K. and Nelson, M.L. (2022) 'Recommendations for the design and delivery of transitions-focused digital health interventions: Rapid review', *JMIR Aging*, 5(2), e35929. doi: 10.2196/35929. Available at: https://doi.org/10.2196/35929.

Steiner, L.M., Osmancevic, S., Zúñiga, F., De Geest, S., Zanini, M. and Simon, M. (2025) 'The effectiveness of interventions on clinical and patient-reported outcomes in hospital-to-home transitions of older adults: A systematic review', *European Journal of Ageing*, 22(1), p. 58. doi: 10.1007/s10433-025-00890-w. Available at: https://doi.org/10.1007/s10433-025-00890-w.

Sun, M., Liu, L., Wang, J., Zhuansun, M., Xu, T., Qian, Y. and Dela Rosa, R. (2023) 'Facilitators and inhibitors in hospital-to-home transitional care for elderly patients with chronic diseases: A meta-synthesis of qualitative studies', *Frontiers in Public Health*, 11, 1047723. doi: 10.3389/fpubh.2023.1047723. Available at: https://doi.org/10.3389/fpubh.2023.1047723.

Sun, M., Qian, Y., Liu, L., Wang, J., Zhuansun, M., Xu, T. and Rosa, R.D. (2023) 'Transition of care from hospital to home for older people with chronic diseases: A qualitative study of older patients' and health care providers' perspectives', *Frontiers in Public Health*, 11, 1128885. doi: 10.3389/fpubh.2023.1128885. Available at: https://doi.org/10.3389/fpubh.2023.1128885.

Weeks, L.E., Macdonald, M., Martin-Misener, R., Helwig, M., Bishop, A., Iduye, D.F. and Stewart, M. (2018) 'The impact of transitional care programs on health services utilization in community-dwelling older adults: A systematic review', *JBI Database of Systematic Reviews and Implementation Reports*, 16(2), pp. 345–384. doi: 10.11124/JBISRIR-2017-003486. Available at: https://doi.org/10.11124/JBISRIR-2017-003486