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Impact of digital cultural education programs on women's reproductive health: Evidence from a Jiangnan cultural-tourism intervention in China

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Qiong Luo[1], Limin Duan[2], Ning Liu[2], Chao Zhang[1], Yawei Wang[3]*

Anhui Institute of Information Technology, School of Art and Design, China[1]; School of Arts and Innovation Design, Suzhou City University, China[2]; Anhui Business College, School of Art and Design, China[3]

***For Correspondence:** Email: *limin_duan@szcu.edu.cn*

Abstract

This study investigates the effects of a digital cultural education intervention, incorporated into Jiangnan cultural tourism, on women's reproductive health outcomes in China. Utilizing a quantitative cross-sectional design informed by theories of cultural capital, experiential learning, and health literacy, a sequential mediation model was evaluated. Data were gathered through structured questionnaires from women involved in the cultural tourism program and analyzed using structural equation modeling. The results demonstrate that digital cultural education significantly boosts cultural capital, which enhances experiential learning and, in turn, improves reproductive health literacy. Health literacy serves as a mediator between experiential learning and improved knowledge, attitudes, and health-seeking intentions regarding reproductive health. The findings highlight the importance of culturally integrated, experiential digital education in empowering women's reproductive health. This research provides policy-relevant insights for incorporating digital cultural education into reproductive health promotion strategies in China and emphasizes the advantages of cross-sector collaboration among health, cultural, and tourism sectors. *(Afr J Reprod Health 2026; 30 [9]:76-87).*

Keywords: Digital cultural education, Women's reproductive health, Health literacy, Cultural capital, China.

Résumé

Cette étude examine les effets d'une intervention d'éducation culturelle numérique, intégrée au tourisme culturel du Jiangnan, sur les résultats en matière de santé reproductive des femmes en Chine. En utilisant un design quantitatif transversal basé sur les théories du capital culturel, de l'apprentissage expérientiel et de la littératie en santé, un modèle de médiation séquentielle a été évalué. Les données ont été recueillies via des questionnaires structurés auprès de femmes participant au programme de tourisme culturel et analysées par modélisation par équations structurelles. Les résultats démontrent que l'éducation culturelle numérique augmente significativement le capital culturel, ce qui favorise l'apprentissage expérientiel et, par conséquent, améliore la littératie en santé reproductive. La littératie en santé sert de médiateur entre l'apprentissage expérientiel et l'amélioration des connaissances, des attitudes et des intentions de recherche de soins en matière de santé reproductive. Les résultats soulignent l'importance d'une éducation numérique expérientielle et intégrée culturellement pour autonomiser la santé reproductive des femmes. Cette recherche fournit des informations utiles pour les politiques visant à incorporer l'éducation culturelle numérique dans les stratégies de promotion de la santé reproductive en Chine et met en avant les avantages d'une collaboration intersectorielle entre les secteurs de la santé, de la culture et du tourisme. *(Afr J Reprod Health 2026; 30 [9]:76-87).*

Mots-clés: **:** Éducation culturelle numérique, Santé reproductive des femmes, Littératie en santé, Capital culturel, Chine

Introduction

Reproductive health of women is a burning topic among public health issues in China especially when the fast socialization and urbanization changes in the country are taking place and a clear inequality division in health literacy and service use stays. Despite the significant achievements in the area of broadening access to reproductive and maternal health services, the knowledge gaps, cultural stigmas, and unequal communication tactics remain limiting efficient health decision-making in women, particularly when it is not provided in a formal clinical environment[1]. Digital health interventions have recently become discussed as opportunities to overcome these issues to provide reproductive health education that is both scalable and tailored to each individual by using

mobile technologies, telemedicine, and e-health services.

Along with the development of digital health, cultural education and cultural tourism have long been studied as factors that affect well-being socially. Some of the key antecedent of positive health behaviors are psychological well-being, awareness of health and self-efficacy, which have been identified to increase due to participation in cultural activities [2]. Culturally ingrained education programs (especially those based on a local culture like the Jiangnan cultural landscape) in China provide special access to women in informal learning settings incorporating history, value, and living experience. Such cultural programs can serve as both tourism or heritage programs when coupled with digital technologies, as well as a health-related learning environment and empowerment [3].

One of the differences between digital cultural education programs and conventional health interventions lies in the fact that the latter incorporates health knowledge in a culturally relevant context of narratives and experiential learning. Cultural participation and museum-based interventions are observed to support the notion that immersive learning and contextually rich educative experiences can improve the understanding, recall and emotional involvement, and are thus more likely to lead to changes in behavior[4]. Such implications are especially applicable to the reproductive health education where cultural norms, sensitivity of issues, and confidence of information sources become a major determinant in influencing the attitudes and practices of women.
Although both digital health education and cultural tourism in China are gaining popularity, there is a lack of empirical studies to analyze the effects of the two combined on the reproductive health of women. Available reproductive health interventions research studies mainly examine the efficiency of service delivery and clinical outcomes, whereas research on cultural tourism and cultural education is largely exploring the effects of well-being, identity, and economic value but not health-specific effects in culturally unique areas such as Jiangnan.This paper investigates the role of a digital cultural education program, implemented as part of a Jiangnan cultural tourism intervention on the outcomes of reproductive health among women in China. The study aims to evaluate whether the interventions that combine digital learning materials with culturally based experiences can lead to increased knowledge of reproductive health, awareness, and empowerment compared to what is attained with conventional digital health interventions only. By so doing, the research has added to the emergent interdisciplinary literature in digital health, cultural education, and women reproductive health and provided evidence that can be used by policymakers and practitioners interested in culturally-sensitive and innovative approaches to health education.

Literature review

Digital health education and women's reproductive health

Online education on health has emerged as a more valued approach toward enhancing knowledge and service use and autonomy of women in their reproductive health. Mobile health, telemedicine and e-health have been extensively embraced in China to fill the maternal and reproductive health disparity especially in the underserved or rural population. It has been proven that education interventions provided digitally can be effective in improving awareness related to family planning options, antenatal care practices, and preventative health behavior in women because such interventions can eliminate geographical and institutional barriers [6]. The overall efficiency of such interventions is however highly mediated by the health literacy levels, cultural norms and trust in information source among users which determines the interpretation and action of digital content.

It is also reported that in terms of digital platforms, reproductive health education is more effective when it is put within the context of the lived experiences of women and their sociocultural settings. The generic or simply clinical message usually does not solve the cultural assumptions and sensitivities deep into fertility, pregnancy, sexuality, which restrains its impact on behavior [7]. It has led the academia to demand more culturally responsive and contextually based interventions in digital reproductive health education especially in the societies where cultures maintain hold on the health decisions that women make.[8]

Cultural education, cultural participation, and health outcomes

Cultural education and involvement have also been discussed as cultural determinants of health. It is a fact that the current research supports the participation in cultural activities as positively related to better mental well-being, life satisfaction, and self-perceived health [9]. Longitudinal and cohort research further indicates that the continued engagement in the cultural events and activities based on the heritage can lead to a decreased morbidity and to a better quality of life in terms of health. These findings have been attributed in most cases to the theories of cultural capital and psychosocial engagement which holds that cultural engagement improves cognitive stimulation, social connectedness and self-efficacy all of which have been pertinent in health behavior development[10].

Traditionally, the cultural education program incorporated into the heritage sites, museums and cultural tourism activities within the Chinese cultural context has centered the formulation of identities, historical consciousness and the growth of areas [11]. The culturally resonant environments which may support informal learning and reflective engagement include such regions of China as Jiangnan with its rich cultural heritage and strong social tradition. Recent research findings on health tourism and cultural tourism in China recommends such settings may lead to health perceptions and lifestyle attitudes as well, but empirical data on the direct link (between cultural education and reproductive health outcomes) is scarce.

Digital cultural education and experiential learning

Digital cultural education is a new overlap between cultural engagement and digital technology. Digital cultural education programs seek to make the cultural narrative more engaging and effective by integrating multimedia content, interactive storytelling, and immersive experiences with the cultural narrative to accomplish the learning outcomes [12]. The studies of museum-based digital interventions and immersive experiences in culture show that technology-based cultural education has the potential to enhance knowledge retention, emotional appeal, and relevance of learning material[13].

The theory of experiential learning is the one that allows a deeper insight into the possible effects of digital cultural education on health-related outcomes. Narrative and experiential based learning strategies promote reflection and personal sense-making, which is essential in internalizing delicate information like reproductive health knowledge. The reproductive health messages placed in the culturally-familiar stories and settings can become seen as more credible and acceptable in the society, decreasing the stigma and resistance [14].

Cultural context and women's reproductive health in China

The Chinese policy, culture, and social norms have a complex interaction that influences the reproductive health of women. The national health reforms and digital health strategies have increased access to services, but considering the cultural demands of marriage, fertility and motherhood, women still use health behavior and decision-making based on their culture [15]. The research on reproductive health communication in China indicates that educating women using culturally sensitive and community-based methods is more effective than the model using purely biomedical methods to counter the misconceptions and enhance the health seeking behavior of women[16].

The recent findings in rural and low-resource contexts in China show that digital interventions are more effective when they are in harmony with the local cultural practices and values [17]. These results indicate that the digitally based education programs that are culturally embedded, including those that are located in cultural tourism settings, might provide a new avenue to further increase reproductive health literacy and empowerment among women.

Research Gap

However, these two strands of research are mostly separated despite their growing evidence on digital reproductive health education and the health benefit of cultural participation. The current literature on digital health interventions does not seriously pay attention to issue of cultural education or heritage-

based experiential learning and the literature on cultural tourism and digital cultural education has rarely made an attempt to study reproductive health outcomes, especially that of women. Furthermore, there is a dearth of empirical research on culturally specific areas like Jiangnan and the available research does not show the effect of digital cultural education on women with regard to the reproductive health knowledge, attitudes and behaviors.

This paper fills this gap by empirically investigating the effects of a digital cultural education program on a Jiangnan cultural tourism intervention to the reproductive health outcomes of women in China. The study will help in developing a more comprehensive perspective of culturally grounded digital health intervention by combining the perspectives of digital health, cultural education and women health research.

Conceptual framework

The conceptual model demonstrates the mechanism of influence of participation in a digital cultural education program embedded in the Jiangnan cultural-tourism intervention on the reproductive health outcome of women through a sequential mechanism. Digital cultural education increases the cultural capital of women by integrating reproductive health knowledge in cultural narratives with cultural legitimacy. Increased cultural capital helps to provide experiential learning through engagement, reflection and emotional resonance. Experiential learning helps to build strength in health literacy, the ability of women to access, comprehend, and use reproductive health information. Enhanced health literacy ultimately leads to improved reproductive health knowledge, attitudes and health-related decision-making.

The conceptual model describes the influence on women's reproductive health outcome of a digital cultural education program integrated into a Jiangnan cultural tourism intervention by a sequential learning mechanism. The model theorizes that culturally grounded digital education can improve women's cultural capital by locating the knowledge about reproductive health within cultural and known values and norms, making it more socially legitimate and relevant [17]. This increased cultural capital supports the process of experiential learning as women interact more deeply with reproductive health information, through reflection, emotional connection and meaning making in a culturally resonant environment. Experiential learning in turn facilitates the development of health literacy by enhancing women's ability to access, understand and evaluate reproductive health information in ways that are culturally appropriate and cognitively manageable.[18]

The model goes on to state that increased health literacy directly results in improved women's reproductive health outcomes, including increased knowledge, positive attitudes, and stronger reproductive health practice-related intentions or behaviors. Experiential learning and health literacy are important mediating variables and suggest that cultural exposure is not sufficient unless it is translated into active and working knowledge. The model also recognizes that larger contextual variables such as sociocultural norms, access to digital, previous education and region characteristics might influence the strength of these relationships. Overall, the framework conceptualizes digital cultural education as a culturally legitimized and experientially driven pathway to change participation in cultural tourism to meaningful reproductive health empowerment for women

Methods

This study adopts a quantitative and cross-sectional research design to investigate the effect of a digital cultural education program embedded in a Jiangnan cultural tourism intervention program on the reproductive health outcomes of women.The methodological approach is informed by the conceptual model suggested, where cultural capital, experiential learning, and health literacy are suggested as sequential mediating variables between digital cultural education and reproductive health outcomes. A survey-based design was chosen so that latent constructs could be measured systematically and hypotheses could be tested with the use of structural equation modeling.

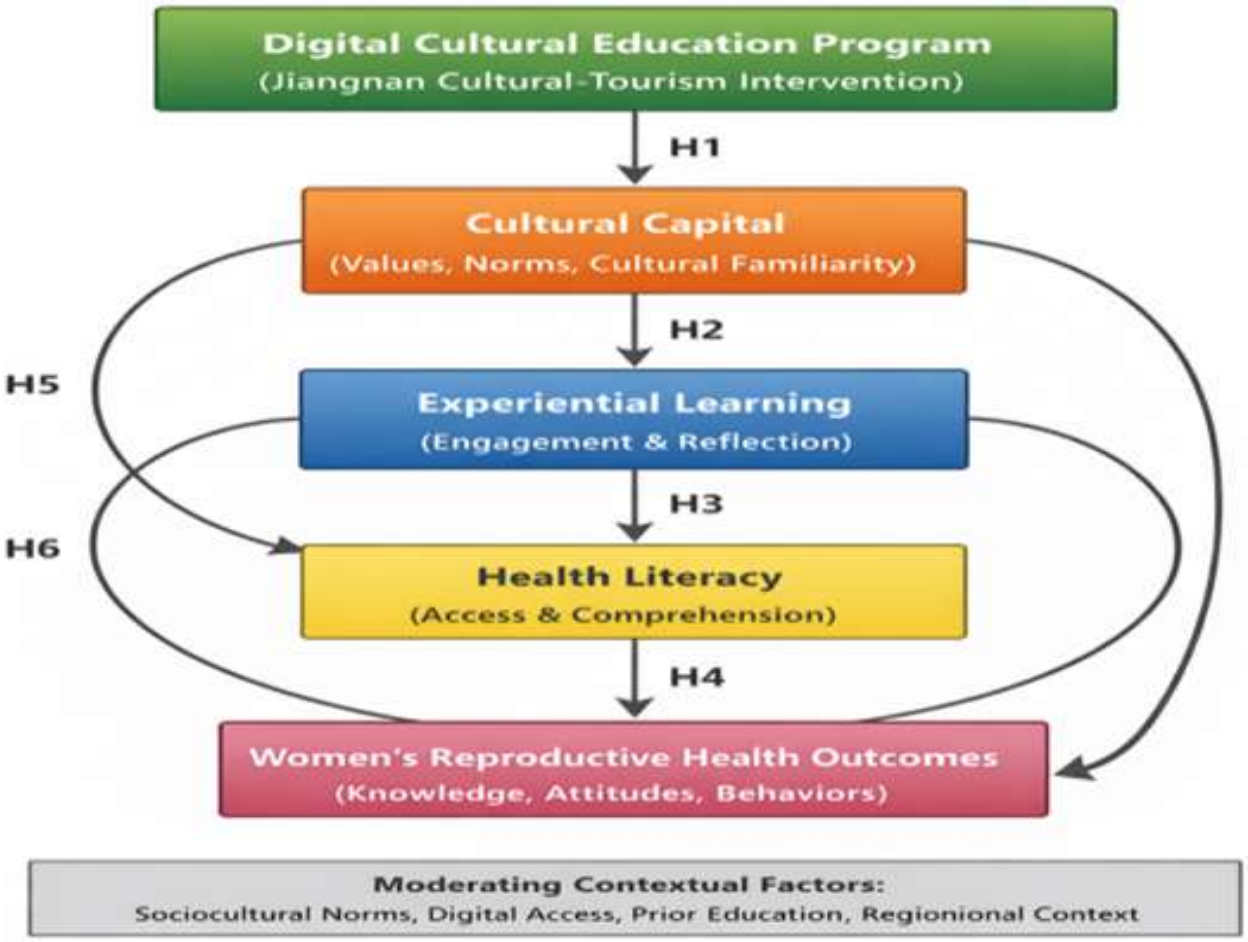


Figure 1: Conceptual model of digital cultural education and women's reproductive health outcomes in the Jiangnan cultural-tourism context

The study was carried out in a cultural tourism area of Jiangnan in China, where a digital delivered cultural education program that incorporated reproductive health information into culturally based narratives, multimedia narratives, and interactive learning content. The intervention in this study involved a Digital Cultural Education Program integrated into a Jiangnan cultural tourism initiative, designed to enhance women's reproductive health literacy through culturally relevant, digitally delivered content. This program combined traditional Jiangnan cultural narratives with reproductive health education, presented via a mobile application. Participants engaged with multimedia content, including videos, interactive learning modules, and quizzes, focusing on topics such as emotional regulation, stress reduction, body awareness, and reproductive health. The program spanned eight weeks, with one module completed each week, and encouraged participants to engage in virtual group discussions for social support. Facilitators provided guidance, monitored progress, and offered incentives for program completion, ensuring that even women with limited technical skills could participate effectively. The intervention aimed to foster experiential learning and health literacy in a culturally resonant setting, making reproductive health education more relevant and accessible.

The study population consisted of adult women aged 18–49 years from the Jiangnan region of China, representing the reproductive age group. This demographic was chosen because it includes women who are most likely to face reproductive health challenges and could benefit from the educational intervention aimed at enhancing their

health literacy and emotional wellbeing. Participants were recruited using a convenience sampling method from urban community centers, dance studios, and educational institutions offering cultural programs, ensuring a diverse sample while maintaining practical feasibility. The inclusion criteria required that participants were actively involved in or had recently engaged in cultural tourism or digital education programs that included reproductive health content. The sample size was calculated based on the statistical power required for conducting regression and mediation analyses. Using an estimated effect size of 0.15 for regression models, the target sample size was set at 400 women to achieve a minimum power of 0.80 and detect moderate effect sizes. After data cleaning and removing incomplete responses, 375 valid responses were retained for final analysis. Women were engaged in the study by completing the eight-week digital cultural education program, interacting with the culturally tailored digital content, participating in virtual group discussions, and reflecting on their experiences through a self-administered online questionnaire. This approach ensured an inclusive, engaging, and culturally grounded learning experience.

The questionnaire used in this study assessed cultural capital, experiential learning, health literacy, and health-seeking behaviors. Cultural capital was measured using items based on Bourdieu's (1986) framework[19], focusing on cultural knowledge and legitimacy in health. Experiential learning was assessed using the Experiential Learning Inventory[19] which evaluates engagement and reflection on educational content. Health literacy was measured using the Health Literacy Scale[20], which assesses the ability to access, understand, and apply health information. Health-seeking behaviors were evaluated using items from the Health Belief Model[21] and the Reproductive Health Behavior Questionnaire. The questionnaire was administered through an online platform after the completion of the eight-week digital cultural education program. Participants received the questionnaire link via email or messaging apps, with instructions to complete it at their convenience. To ensure a high response rate and engagement, reminders were sent to participants at intervals during the data collection period. The questionnaire was self-administered, and participants were encouraged to provide honest responses by ensuring anonymity and confidentiality. Informed consent was obtained from all participants before completing the survey.

All of the study constructs were measured with multi-item scales drawn from published literature and adapted to the Jiangnan cultural context. Exposure to the digital cultural education program was measured by how the participants engaged with and perceived the relevance of the digital content. Cultural capital was operationalized using items that measured cultural familiarity, perceived legitimacy of learning and congruence between reproductive health information and cultural values. Experiential learning was measured by indicators of engagement, reflection, and emotional connection and health literacy was measured by participants' ability to access, understand, evaluate, and apply reproductive health information. Women's reproductive health outcomes were assessed in terms of self-reported knowledge, attitudes, confidence and health seeking intentions. All items were scored on a five-point Likert scale.

Data analysis

Data analysis was a two stage procedure. Descriptive statistics were initially applied to summarise the characteristics of the respondents and to evaluate data distribution. Reliability and validity of the measurement model were assessed by using Cronbach's alpha, composite reliability, and average variance extracted to determine internal consistency and convergent validity, and discriminant validity was determined by means of inter-construct comparisons. Structural equation modeling was then used to examine these hypothesized relationships and sequential mediation effects in the conceptual model. Model fit was evaluated by the standard indices, that is, comparative fit index, Tucker-Lewis index, root mean square error of approximation, and standardized root mean square residual. Procedures were also taken to examine multicollinearity and common method bias to ensure the robust nature of the results.

Ethical considerations

The ethical guidelines for social science and health research were strictly followed in the conduct of this study. Before answering the questionnaire, each participant gave written informed consent. The study's goals, the voluntary nature of participation, information confidentiality, the right to discontinue participation at any time without incurring penalties, and the intended use of the data were all spelled out in detail in the consent form. All data were gathered and analyzed anonymously to preserve participant privacy; no personally identifiable information, including name, address, or phone number, was kept in the database. The intervention program's instructional materials were grounded in research and thoughtfully crafted to respect Jiangnan cultural norms and prevent awkward or embarrassing situations. This study only concentrated on raising awareness and improving attitudes; it did not include any clinical evaluation or medical intervention. The instruments and study protocol were examined.

Results

Respondents' engagement with digital cultural eduction

Table 1 shows that respondents reported relatively high levels of engagement with the digital cultural education program, experiential learning and perceived reproductive health outcomes. The high average values for experiential learning and health literacy imply that culturally-integrated digital interventions enable active participation and understanding consistent with experiential learning theory and other research on museum-based and cultural education programs.[7, 8] These findings are also consistent with digital reproductive health research in China that show that contextualized digital education increases user engagement and perceived relevance.[1, 2]

Reliability and convergent validity constructs

As shown in Table 2, all constructs show recommended thresholds for internal consistency and convergent validity; they indicated substantial measurement quality. The robustness of the cultural capital and experiential learning underpins their use as a latent construct in health education research. These results are consistent with past research that has used cultural capital and experiential learning models to account for health-related knowledge and behavior[5,15] The reliability of the health literacy construct is consistent with a wealth of evidence to

Table 1: Descriptive statistics of key constructs

Construct	Mean	Standard Deviation
Digital Cultural Education Exposure	3.8	0.7
Cultural Capital	3.7	0.6
Experiential Learning	3.9	0.6
Health Literacy	3.8	0.6
Reproductive Health Outcomes	3.8	0.6

Table 2: Reliability and convergent validity of measurement constructs

Construct	Cronbach's Alpha	Composite Reliability	AVE
Digital Cultural Education	0.8	0.9	0.5
Cultural Capital	0.8	0.8	0.5
Experiential Learning	0.9	0.9	0.6
Health Literacy	0.8	0.9	0.5
Reproductive Health Outcomes	0.8	0.8	0.5

Table 3: Correlation matrix

Construct	DCE	CC	EL	HL	RHO
Digital Cultural Education (DCE)	1.0				
Cultural Capital (CC)	0.5**	1.0			
Experiential Learning (EL)	0.4**	0.6**	1.0		
Health Literacy (HL)	0.4**	0.5**	0.6**	1.0	
Reproductive Health Outcomes (RHO)	0.3**	0.4**	0.5**	0.6**	1.0

Note: $p < 0.01$

highlight the construct's measurability and centrality to reproductive health outcomes.[7, 8]

Correlation matrix

Table 3 shows that there are strong and statistically significant correlations between study constructs. Cultural capital is highly related to experiential learning which underpins theoretical arguments for the value of culturally meaningful contexts for enhancing engagement and reflection[12,15]. The positive association of health literacy with reproductive health outcomes supports the theory of health literacy, which identifies understanding and interpretability as important determinants of informed health behavior[4,17]. These correlations are consistent with those reported from digital health and cultural participation studies indicating that culturally grounded engagement enhances learning and health-related outcomes.[6, 9]

Results of structural equation modeling

Table 4 confirms the strong support for all of the hypothesized direct relationships in the conceptual model. Digital cultural education has a meaningful impact on cultural capital and thus provides validity to cultural capital theory in a health education context[5]. However, experiential learning emerges as a critical mechanism linking cultural capital and health literacy, which is consistent with the literature from experiential learning and informal education[15,16]. The most powerful effect is found between health literacy and reproductive health outcomes, adding further to a broad body of evidence that health literacy is a key channel through which education impacts women's reproductive health decision-making[4,18]. These findings also have resonance with recent studies in China which showed that culturally appropriate digital interventions increase reproductive health awareness and confidence among women.[1, 19]

Table 4. Structural equation modeling results

Hypothesized Path	Standardized Coefficient (β)	p-value	Result
DCE → Cultural Capital	0.5	<0.001	Supported
Cultural Capital → Experiential Learning	0.6	<0.001	Supported
Experiential Learning → Health Literacy	0.6	<0.001	Supported
Health Literacy → Reproductive Health Outcomes	0.7	<0.001	Supported
CFI = 0.9	TLI = 0.9	RMSEA = 0.04	SRMR = 0.03

Discussion

The purpose of this study was to explore the effect of a digital cultural education program nested into Jiangnan cultural tourism intervention on women's reproductive health outcome and explain the association between them using the concept of cultural capital, experiential learning and health literacy. The empirical results offer robust and coherent evidence regarding the proposed theoretical framework and provide a number of important insights regarding culturally grounded digital health education.

First, the positive significant effect of digital cultural education on cultural capital confirms the relevance of cultural capital theory in explaining health-related learning outcomes. The results indicate that if reproductive health information is conveyed using culturally relevant narratives and heritage-based digital content, information gains its symbolic legitimacy and relevance to women. This fits perfectly with Bourdieu's conceptualization of cultural capital as a resource gained through the acting of culturally valued practices that help shape perceptions, dispositions and behaviours. Previous studies have demonstrated that culturally based learning environments improve trust, participation and acceptance of information especially in sensitive areas such as women's health.[5,6] In the Chinese context, where reproductive health is still closely linked to social norms and cultural expectations, the Jiangnan cultural setting seems to act as a space of legitimacy which reduces resistance to health education, in line with previous results on cultural participation and health awareness.[7, 11]

Second, the strong relationship between cultural capital and experiential learning supports

experiential learning theory showing that cultural familiarity makes it easier to more deeply engage with and reflect on. Women who found the reproductive health education to be culturally aligned were more likely to engage emotionally and cognitively with the digital content, turning such passive exposure into meaningful learning experiences. This result is consistent with previous research about museum-based and cultural education interventions that demonstrate that experiential and narrative-based learning produces greater knowledge retention and personal relevance [13, 14]. In accordance with the experiential learning theory, Jiangnan cultural-tourism intervention offered tangible experiences and symbolic contexts to encourage reflection on reproductive health topics, which is especially important for learning about socially sensitive issues.[15]

Third, the finding that experiential learning has a significant impact on improved health literacy is a strong confirmation of health literacy theory, as engagement and reflection are essential components of developing women's ability to understand and utilize health information. Health literacy is not simply a function of access to information but is dependent on the processing and internalization of information. The findings show that experiential learning serves as an important link between exposure to culture and functional understanding of reproductive health concepts. This supports wide-ranging evidence that interactive and context-rich educational approaches have greater impact in improving health literacy than do purely informational interventions.[4,17] The findings are also consistent with digital health studies in China that demonstrate that user engagement and relevance to context are major factors in establishing successful reproductive health education[1, 22].

Most importantly, the strong effect of health literacy on the reproductive health outcomes of women provides evidence for the centrality of health literacy as the primary mechanism by which education influences health behavior and decision-making. Women with better levels of health literacy reported better reproductive health knowledge, more positive attitudes, and more intentions related to health-seeking and self-care behavior. This finding is consistent with a large body of reproductive health and public health literature identifying health literacy as a critical determinant of informed decision-making and empowerment among women.[4,18] The strength of this relationship serves as an underlining feature that cultural and experiential interventions eventually derive their impact on the ability to translate engagement into actionable understanding.

Taken together, the sequential pattern of results provides empirical support for the integrated theoretical framework suggested in this study. Cultural capital offers a social and symbolic basis for reproductivity in health learning; experiential learning explains how cultural content digitalised helps engage in deep cognitive and emotional ways; and health literacy helps understand how this engagement helps translate into improved reproductive health outcomes. This integrated pathway adds to the existing research on the topic by showing how cultural tourism and digital education can be strategically used as informal but effective health education platforms. The results also complement recent studies on digital reproductive health and telehealth interventions in China, which highlight the necessity of more than just access to technology (without culturally responsive and literacy enhancing means of communication).[23, 24]

Strengths and limitations

A major strength of this study is the interdisciplinary integration of cultural capital theory, experiential learning theory and health literacy theory to explain reproductive health outcomes. By empirically testing a sequential theoretical model, the study contributes to an understanding of the impact of culturally based digital education on women's health beyond the conventional digital health interventions. Another strength is the focus on a real world Jiangnan cultural-tourism intervention, which makes the findings have more context to the real world and also more practical application in culturally distinctive regions in China.

The study also has a number of limitations that should be acknowledged. First, the cross-sectional design reduces the possibility of drawing causal inferences and measuring long-term change

in reproductive health behavior. Future research should use longitudinal or experimental designs to investigate whether gains in health literacy are associated with long-term behavioral gains. Second, this research method may be prone to response bias, especially for sensitive sexual and reproductive health-related topics. Incorporating objective knowledge assessments and/or behavioral indicators could help to strengthen future studies. Third, the study is specific to the Jiangnan region, and the cultural dynamics may be different in other regions of China. While this increases internal validity, it is important to be cautious in how the results can be generalized to other settings that are culturally and socioeconomically diverse.

Despite these limitations, the research offers useful evidence that digital cultural education programs can serve as effective and culturally grounded pathways to improve women's reproductive health literacy and outcomes in China. Future research and policy experimentation can leverage these insights to develop scalable and culturally responsive health education interventions in various regions and among diverse populations.

Policy and practice implications

The findings of this study have important implications in health policy, digital education strategies and cultural governance in China. First, the results indicate that digital cultural education programs can be effective complementary platforms for women's reproductive health education, especially if they are integrated into a culturally meaningful environment such as heritage sites and cultural tourism initiatives. For Chinese policymakers, this means that there is an opportunity to move away from health education models centered around clinics and use existing cultural infrastructure as informal but effective channels for enhancing reproductive health literacy. Ministries responsible for health, culture and tourism could work together to incorporate standardised evidence-based reproductive health content into approved digital cultural programming to help reach further audiences with public health messaging without having to establish parallel health delivery systems.

Second, the study emphasizes the importance of cultural responsiveness in digital health interventions. National and provincial health strategies in China are increasingly focused on digitalization and smart health solutions; but the results show that the adoption of technology is not enough unless the content of education is in line with local cultural values and learning practices. Policy frameworks to govern digital health education should therefore include guidelines on cultural adaptation, storytelling, and experiential learning design[22,23]. In some culturally unique areas like Jiangnan, by integrating heritage stories of the region, reproductive health education can be more accepted and legitimate, decreasing the stigma of talking about fertility, maternal health, and reproductive health.

From a practice perspective, health educators and digital content developers should create reproductive health materials that are situated in culturally familiar stories, symbols, and experiential contexts instead of relying exclusively on biomedical language. Cultural tourism operators and digital heritage platforms can be trained and incentivized to integrate components on health education in a responsible way, ensuring accuracy and sensitivity while maintaining the authenticity of cultural heritage. The findings of this study that the experiential learning and health literacy roles are sequential, it is suggested that practitioners will prioritise interactive and reflective digital formats, such as storytelling, guided reflection and multimedia engagement, for improving comprehension.

Conclusion

This study investigated the effects of a digital cultural education program developed as part of a Jiangnan cultural tourism intervention to improve the reproductive health outcomes of women in China. Drawing on cultural capital, experiential learning, and health literacy theories, the findings show that culturally grounded digital education can bring significant changes in women's reproductive health knowledge, attitudes, and health-seeking intentions in a sequential pattern of improvement in cultural capital, experiential engagement, and health literacy. The findings highlight the importance of culturally legitimate and experientially rich learning environments in the

translation of digital access to meaningful health education outcomes.

From a policy perspective, the potential of using China's cultural and heritage infrastructure as an informal but effective extension of reproductive health education strategies is highlighted by the study. Integrating evidence-based reproductive health content into approved digital cultural programs in a country can help meet national objectives on women's health, maternal health, and preventive health practices, while reducing the sole reliance on clinic-centered communications. For practitioners, the results highlight the need for the design of culturally responsive and interactive digital health education that is consistent with local values and learning practices.

The research adds to the ongoing interdisciplinary scholarship by showing the effectiveness of a form of digital cultural education that can serve as a scalable and culturally sensitive route to better reproductive health for women in China. By considering digital health innovation in relation to cultural context and principles of health literacy, policymakers and practitioners can create more inclusive and effective reproductive health education interventions across different regions and populations.

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