

Pilot evaluation of Digital MindSKILLZ in Lagos, Nigeria: an interactive voice response game to improve mental wellbeing of adolescents

Grassroot Soccer

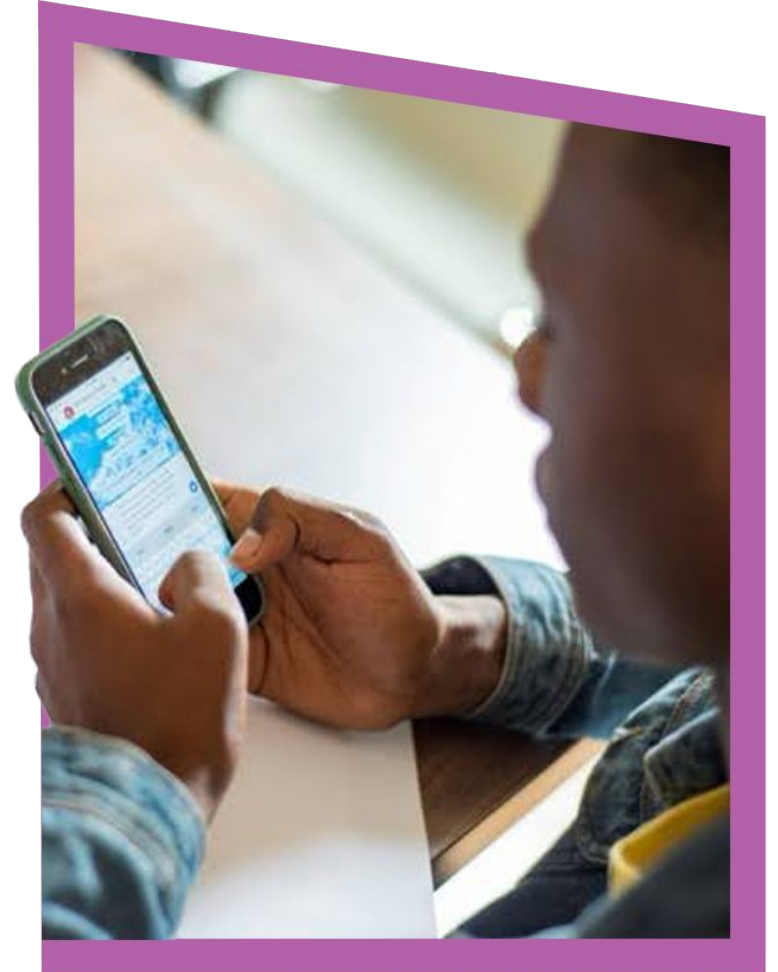
Presenter: Polite Ndlovu

Authors: Devyn Lee, Babatunde Odusolu, Kondwani Kuthyola,
Dr Adekemi Sekoni



Background

- Interactive voice response (IVR) is a technology that can reach users with access to any phone, not only smart phones
- It prompts users to listen to recordings and choose response options using the phone number keys
- Viamo's 3-2-1 platform is operational in 25 countries, reaching over 40 million people annually with content on a variety of topics in the form of dramas, games/quizzes and gamified content.

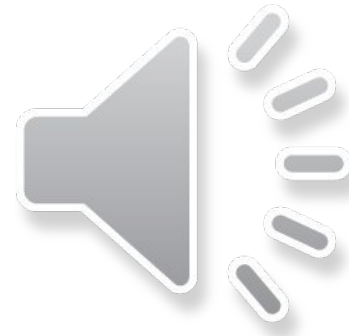


Background

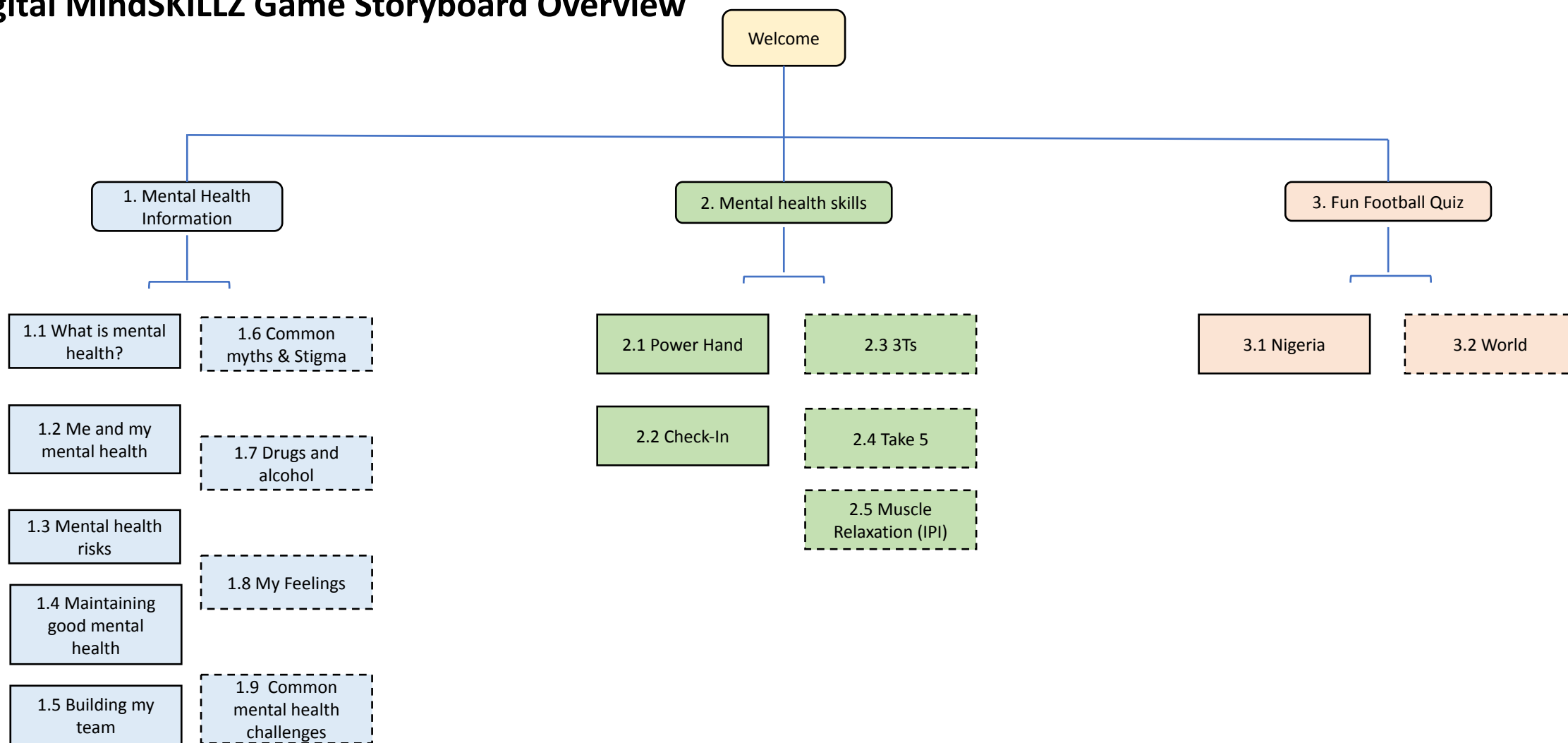
- Grassroot Soccer (GRS) is an adolescent health organization that uses trained near-peer mentor Coaches to deliver sport-based programming to adolescents, using soccer language and activities to convey key health information
- GRS partnered with Viamo to develop and evaluate the **Digital MindSKILLZ** IVR game, which aims to deliver mental health information and introduce positive coping skills to young people in an engaging, accessible way.

The Digital MindSKILLZ IVR game

- Voice actors guide participants through mental health, football knowledge, and coping skills content in the game, as participants respond to questions and navigate through the game.



Digital MindSKILLZ Game Storyboard Overview



[Dashed box] = New topics

Methods

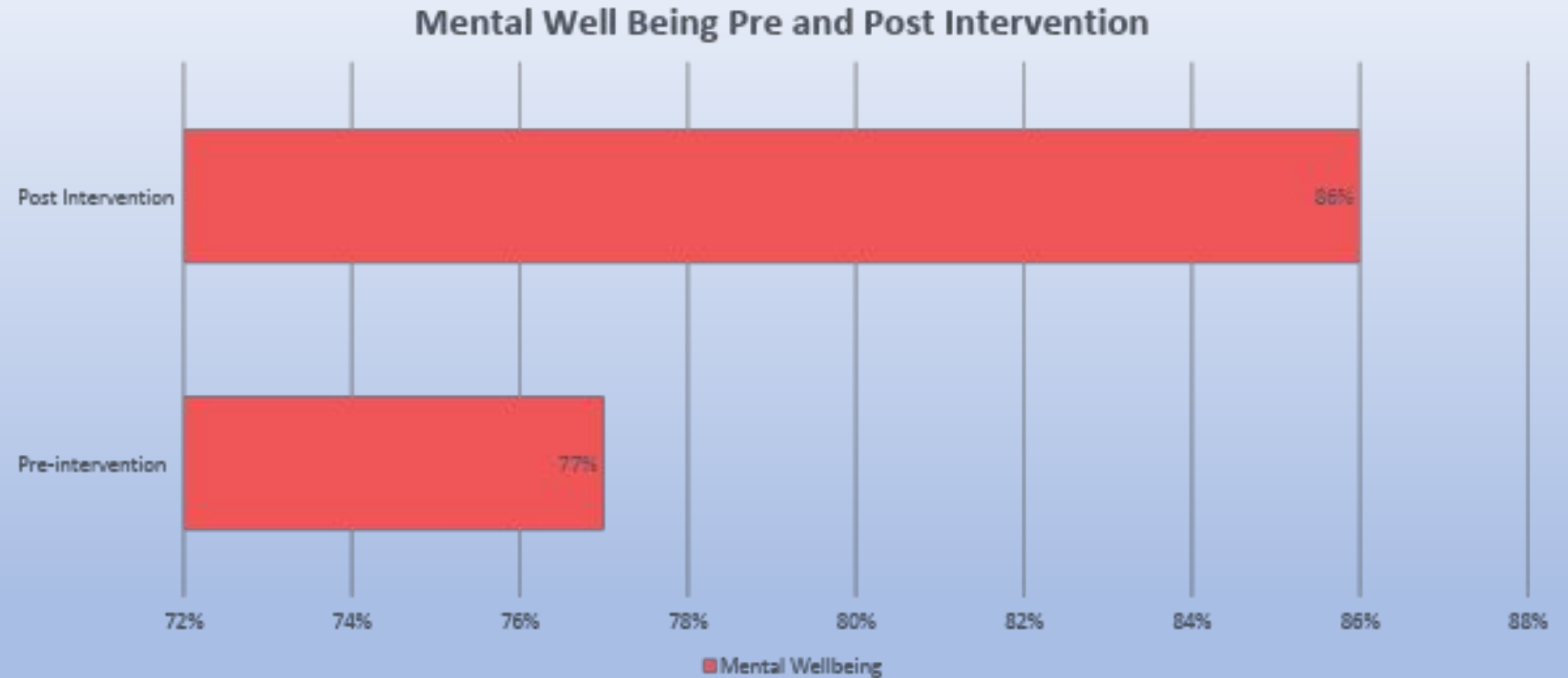
- GRS conducted a pilot evaluation to examine **acceptability, feasibility, and preliminary effectiveness** of the Digital MindSKILLZ game as a platform for young people aged 15-24 in Lagos, Nigeria to access mental health information.
- The evaluation used the following methods to collect data from participants:
 - Short pre-game survey (n=25)
 - Focus group discussions (n=3 groups)
 - Follow-up survey after 8 weeks (n=22)

Results

- Digital MindSKILLZ was highly acceptable to participants:
 - 92% reported that they liked the game ‘a lot’
 - 84% reported that it was easy to understand
 - 96% would recommend the game to others
- Participants also reported via FGDs that they found the game to be fun, interesting, motivating, and explanatory.



Results



Results

- Participants reported improved understanding of mental health after the game, and that they enjoyed learning coping skills (mindful breathing), finding them clear and useful.
- Connectivity via phone call remained challenging, and some participants recommended improving the navigation through the game.
- Participants provided several recommendations for improvement, including connecting the game to services and providing a Q&A function.

“It said the fact that you are happy does not mean you don’t have mental health issues. Sometimes I find myself happy and all that but if little thing just happens, I will have some aggression suddenly like that that makes me to believe that the fact that you are happy does not mean that you don’t mental health issues. I now have better understanding of that fact.” (19 YEARS, FEMALE)

Conclusion

- The Digital MindSKILLZ game shows the potential for the IVR platform to enhance reach to a wider population of adolescents with critical lifesaving health information in other disease areas and geographies.
- With the success of this pilot, Grassroot Soccer is expanding to 10 more countries with its Digital MindSKILLZ game
- Furthermore, GRS is exploring the use of generative AI technology for Digital MindSKILLZ

Title of Project:

4-2-1 Digital Mind SKILLZ Game Pilot Evaluation in Lagos, Nigeria

This study aimed to evaluate the 4-2-1 digital Mind-SKILLZ game which is available on three mobile networks (Airtel, MTN and 9mobile) in Nigeria. The 4-2-1 digital Mind-SKILLZ game aims to empower young people with fun mobile-based critical mental health information for continual mental health engagement on any mobile device.

The intervention was carried out in February 2024 to answer the following questions:

Question 1: What is the general mental wellbeing status of young people (aged 15-24years) who are not enrolled in SKILLZ in Lagos, Nigeria prior to engaging in the digital Mind-SKILLZ game?

Question 2: How effective is the Digital Mind-SKILLZ game at improving mental health related knowledge of young people (aged 15-24years) who are not enrolled in SKILLZ in Lagos, Nigeria.?

Question3: How effective is the Digital Mind-SKILLZ game at improving attitudes towards mental health related issues of young people in Lagos, Nigeria (aged 15-24years) who are not enrolled in SKILLZ.?

Question 4: What is the preliminary feasibility, acceptability, and appropriateness of the digital Mind-SKILLZ game as a platform for young people (aged 15-24years) accessing mental health information?

Question 5: What are the barriers and facilitators to implementing the digital Mind-SKILLZ game?

Quantitative Results

25 respondents participated in the intervention study while 22 respondents took part in the 8weeks follow up data collection.

12 respondents were in the 15-19years age group and 13 in the 20-24years age bracket (mean age 19.84 ± 3.34)

11 (40%) were males and 14 (60%) females.

12 (48%) had post-secondary school education; 11 (44%) had senior secondary school education while 2 (8%) had junior secondary school education.

Descriptive Tables

Table 1: WHO Mental Wellbeing Q1 – Q5 (n=22)

	Scores Pre	Scores X 4	No of respondents	Scores 8 wks Post	Scores X 4	No of respondents
	3	12	1	11	44	2
	10	40	1	12	48	1
	12	48	3	13	52	3
	13	52	1	14	56	1
	14	56	2	15	60	2
	15	60	3	16	64	2
	16	64	2	17	68	3
	17	68	6	18	72	3
	18	72	1	19	76	2
	20	80	2	20	80	1
				21	84	2
Range	3 - 20			11 - 21		

The total raw score, ranging from 0 to 25, is multiplied by 4 to give the final score, with 0 representing the worst imaginable well-being and 100 representing the best imaginable well-being. The lowest score is 12 and 11 pre and postintervention respectively, 17 (77.3%) respondents had final score above 50 preintervention while 19 (86.4%) did postintervention.

Table 2: Emotional processing Q6 – Q9 (n=22)

	Scores Pre	No of respondents	Scores 8wks Post	No of respondents
	8	1	6	1
	9	4	8	4
	10	1	9	1
	11	5	10	2
	12	5	12	7
	13	3	13	1
	14	1	14	2
	15	2	15	2
			16	2
Range	8 - 15		6 - 16	

The EP scale is designed to measure active attempts to acknowledge and understand emotions by rating each item on a 4-point Likert scale (1 = “I usually don’t do this at all” to 4 = “I usually do this a lot”). Total scores range from 4 to 16, with lower scores representing poorer emotional coping. The lowest score for the respondents was 6.

Table 3: GAD 7 Anxiety Q10 – Q16 (n=22)

	Scores Pre	No of respondents	Scores 8wks Post	No of respondents
	3	1	2	1
	5	1	3	2
	6	1	5	3
	7	1	6	1
	8	1	8	2
	9	2	10	4
	10	2	11	1
	11	2	12	1
	12	1	13	5
	13	2	16	1
	14	2	20	1
	15	2		
	17	1		
	18	3		
Range	3 - 18		2 - 20	

Maximum score for GAD 7 scale is 21. Scores of 0-4 signifies minimal anxiety; 5-9 mild anxiety; 10-14 moderate anxiety. A score of 8 points or higher is a reasonable cut-off for needing further identifying evaluation to determine presence and type of anxiety disorder. 18 (81.8%) of the respondents had scores ≥ 8 preintervention while 15 (68.2%) did postintervention.

Table 4: Mental Health Knowledge Q17 – Q25 (n=22)

	Scores Pre	No of respondents	Scores 8wks Post	No of respondents
	2	1	3	1
	5	3	4	1
	6	4	5	3
	7	10	6	2
	8	3	7	8
	9	1	8	5
			9	2
Range	2 - 9		3 - 9	

Maximum score was 9, 21 (95.5%) respondents scored at least 5 preintervention while 20 (90.9%) did postintervention.

Table 5: Stigmatizing Beliefs about Mental illness Q27 – Q30 (n=22)

	Scores Pre	No of respondents	Scores 8wks Post	No of respondents
	6	1	5	1
	8	1	8	2
	9	1	9	2
	10	4	10	3
	12	9	11	5
	13	2	12	4
	14	3	13	1
	18	1	14	2
			16	1
			18	1
Range	6 - 18		5 - 18	

Maximum score is 20. Respondents with lower scores are less stigmatizing. The lowest scores recorded was 6 preintervention and 5 postintervention. 19 (86.4%) respondents preintervention scored >10 while 17 (77.3%) did post intervention.

Uptake of mental health or psychosocial support services

2/22 (9.1%) responded Yes i.e. had used mental health/psychosocial support services preintervention while 6/22 (27.3%) did at the postintervention data collection

Table 6: Comparison of mean (pre and 8 weeks postintervention) n=22

	Variable	PRE Mean, SD	POST Mean, SD	Kruskal Wallis H (X ²) df, pvalue
Q1 - 5	WHO Mental wellbeing	14.86 (3.69)	16.09 (3.07)	11.98 10; 0.286
Q6 – 9	Emotional processing	11.46 (1.95)	11.55 (2.86)	7.56 8; 0.478
Q10 - 16	GAD 7 (Anxiety)	11.64 (4.33)	9.50 (4.59)	15.94 10; 0.101
Q17 -25	Knowledge	6.55 (1.44)	6.73 (1.55)	10.52 6; 0.104
Q27 – Q30	Attitude towards mental illness	11.68 (2.44)	11.23 (2.79)	14.96 9; 0.092

No statistically significant change was observed between the pre and postintervention data. However, the mean knowledge score increased by 0.18 post intervention while the mean attitude score decreased by 0.45 postintervention indicating a slight increase in knowledge and slight reduction in stigmatizing beliefs regarding mental health and individuals with mental health issues.

Table 7: Acceptability of 4-2-1 digital mindskillz game

Variable (n=25)	Strongly agree (4)	Somewhat agree (3)	Somewhat disagree (2)	Strongly disagree (1)
Mental Health Info Liked the section of the game	21	4	0	0
Mental Health Info. Information is useful	21	4	0	0
Mental Health SKILLZ. Liked the section of the game	21	4	0	0
Mental Health SKILLZ. Information is useful	22	3	0	0
Football Knowledge, Liked the section of the game	15	9	1	0
Football Knowledge. Information is useful	18	3	3	1

Acceptance of the 4-2-1 digital mindSKILLZ game was very high

Table 8: Overall experience with the 4-2-1 digital mindskillz game

Variable (n=25)	Strongly agree (4)	Somewhat agree (3)	Somewhat disagree (2)	Strongly disagree (1)
Overall like the game	23	2	0	0
Information in the game easy to understand	21	4	0	0
Game was fun	18	6	1	0
Content is appropriate	23	1	1	0
Took too much time	9	4	6	6
Recommend the game	20	4	1	0

Overall experience with the game was least positive with the time it took to complete the game however the qualitative data showed that respondents complained about the challenges encountered with connectivity which took a long time to sort out.

Qualitative Result Immediate Post Intervention

Table 9: Demographics of participants in the 3 focus group discussions

S/n	Age	Sex	Education
R1	16	F	Post SSS
R2	15	F	JSS
R3	16	M	SSS
R4	18	F	SSS
R5	17	F	Post SSS
R6	17	M	SSS
R7	17	F	SSS
R8	18	F	SSS
R9	23	F	Post SSS
R10	15	M	SSS
R11	24	F	NFE
R12	17	F	SSS
R13	19	F	Post SSS
R14	24	M	Post SSS
R15	15	M	SSS
R16	20	F	Post SSS
R17	23	M	Post SSS
R18	23	M	Post SSS
R19	23	M	SSS
R20	23	F	Post SSS
R21	24	F	Post SSS
R22	23	M	SSS
R23	22	M	SSS
R24	21	M	SSS
R25	23	F	Post SSS

Objectives of this qualitative study

- Explore factors influencing the feasibility, acceptability, and appropriateness of the 4-2-1 digital mindSKILLZ game.
- Identify barriers and facilitators that can influence the effectiveness of the game and its ability to achieve its primary objectives i.e improved mental health knowledge and increased awareness of coping skills.
- Obtain end-user recommendations for effective deployment of the 4-2-1 game.

Data collection took place in one of the seminar rooms in the department of community health and primary care college of medicine of the University of Lagos coordinated by the consultant and assisted by a paid moderator. Data collection took

place over a period of 3 days (7th to 9th of February 2024). The participants were divided into 3 groups.

Group 1: 15 -19years age group 8 participants

Group 2: 20 -24years age group 8 participants

Group 3: Mixed ages 9 participants

The task for each day consisted of pre-intervention data collection, playing the 4-2-1 digital mindSKILLZ game, quantitative data collection with the questionnaire and focus group discussions. The sessions were audio recorded, transcribed, and analysed thematically (Appendix 1 – Transcript immediate post intervention). The result is presented below as:

- a. Descriptive findings – themes, prose and the verbatim quotes
- b. The SWOT analysis table for the first phase (Appendix 2) and
- c. The adapted COM - B model situated within the context of the 4-2-1 digital mindSKILLZ logic model for the first phase of the research.

A. The descriptive findings

Five themes were generated.

1. The onboarding process and platform related experience
2. Overall experience of the game
3. Short-term outcomes of the game
4. Innovation and uniqueness of the 4-2-1 digital mindSKILLZ game
5. Recommendations for improvement

The game was described with the following words by the respondents; cool, good, educative, smooth enough, okay, fun, interactive, motivative, explanatory, interesting etc. in the opinion, the following sentences can be used to introduce the game to their peers.

A platform meant for youths and teenagers because it is going to educate them, and they will know more than what they have known before about their mental health and sports football to be precise. (22Years, Male, SSS)

A free and viable game that is educative and helps to develop one's mental health as well as enlightens you more about your health status. (17Years, Female, Post SSS)

1. The onboarding process and platform related experience

Majority of the respondents described the onboarding process as “stressful” due to a variety of reasons. The network was poor resulting in individuals having to make several attempts to connect to the platform this happened with dialling the 4-2-1 code as well as the GSM number 07080608902. Sometimes after succeeding at this step for some participants, it took an average of waiting for close to 5 minutes before they received the call back on the platform also, some individuals reported that midway moving from section to section became difficult and they had to start the

game all over again. The maximum time experienced for onboarding was between 45 to 60 minutes. This left the young people affected feeling frustrated and on edge imparting negatively on their mental health and ability to fully enjoy/appreciate the game. Respondents without network issue/platform related challenges however had a smooth onboarding experience.

Firstly, it was somehow stressful because the network issue was somehow shaa but at last eventually I played the game. It was just the network for me, it was cutting and all that. (23Years, Female, Post SSS)

It was very difficult at first then it became easy because the code 421 was having an issue because of the network but after using the number it became very easy. (23years, Female, Post SSS)

Their language, first when you dial the number, the language you wanted is not the one they will bring for you they speak Yoruba, Hausa, Ibo before you get your own language it took time. (18YEARS, FEMALE, SSS)

2. Overall experience of the game

About a third of the respondents did not experience any difficulty playing the game itself while the rest had some difficulty. Following the instructions required to navigate from section to section or to answer the questions was challenging for some of the respondents who ascribed this to the steps being complicated, the language/information not clear enough, absence of video for greater clarity, or the sequence of events being too fast. For individuals not very conversant with football/who are not soccer fans, understanding and answering the questions in this section was reported as difficult. However, with the mental health section some individuals struggled balancing what information they had before playing the game with the new information they heard from the game. Some respondents reported that listening to the mental health information made them self-reflective triggering emotional reactions.

The most difficult thing to understand was choosing the options for the questions. They said if question is true pick 1 if question is false pick 3 it's not really understandable some people picked 2 or 3 and they will need to repeat the question for the person. (17YEARS, FEMALE, SSS)

The only way I can say is difficult is when the options changed, like the football aspect they said if its true 1 if its false its 3 then I pressed 3 and it said I didn't select any number, so I had to press 1 that's when I was failed because it's the wrong answer. (23 Years, Male, SSS)

My overall experience from the game would be rated a 7 out of 10. I think the most difficult thing to understand there is just the navigating from section to section whereby the information was not clear enough, you must be dialling codes and pressing of numbers and the power hand coping technique. (23years, Male, Post SSS)

It was quite challenging to me as well because before I could press the number, they would have changed the question. (15YEARS, MALE, SSS)

It was challenging too a little bit when it was time for me to answer because I am not a football person the football questions were very hard for me, I was just guessing. To answer football questions was hard. (20YEARS, FEMALE, POST SSS)

I was just feeling emotional because of the questions. As if someone was interacting with me as if someone knows what has been happening to me. (23YEARS, FEMALE, POST SSS)

I asked a question from the facilitator it was "how can you be in a good mood and have mental illness" sometimes I feel that when you are happy that is when your mental health should be stable you are making money you are eating good food you are going and coming at the end of the day when I answered the question I failed because I said if I am happy I don't think I have any mental illness but it said no even if you are happy you can still have mental health issues. (20YEARS, FEMALE, POST SSS)

My own experience was about the questions about the health and food matter because I was thinking that if you are eating and doing some kind of stuffs you will be healthy but when I now heard on the SMS voice that eating and being healthy is not the one that is curing depression, I was not happy about that answer. (23years, Male, Post SSS)

To me I think some questions regarding the mental health has 2 answers. The mental health questions were kind of difficult to get as some questions seem as though it has more than an answer. Eem there was a question that was stating this question, there are mental health services available to you the question is looking like are you aware there are mental health services available, or perhaps have you undergone any mental health service, so the question seems like though it has 2 answers that's it. (24years, Female, Post SSS)

The most difficult of the questions I was asked was that can you fix your friend maybe the person is suffering from mental health problem that was the only question I failed because I was like yes you can try and fix their problem whereas it made me to understand that you can only try to help and listen to them but you can't fix their problem. (24YEARS, MALE, POST SSS)

I will like to speak more on the gaming aspect like the soccer aspect because when the AI was giving the options it was saying 1 and 3 not 1 and 2 in which we press 3 and by its own voice the AI is coming in telling us that the option we picked is not among the options, which is number 3 because it was only giving 1 and 3. I actually choose 1 which gave me a wrong answer but I actually knew the answer was not correct but later I just tried picking number 2 and it was like it was correct. (23years, Male, Post SSS)

3. Short-term outcomes of the game

i. Improved understanding of mental health issues – the respondents highlighted improvement in the areas of fresh exposure to any form of mental health related information (mental health naïve participants), identification of myths and misconceptions in their former knowledge, and receipt of new information which enabled them to learn-unlearn and relearn.

It said the fact that you are happy does not mean you don't have mental health issues. Sometimes I find myself happy and all that but if little thing just happens, I will have some aggression suddenly like that that makes me to believe that the fact that you are happy does not mean that you don't mental health issues. I now have better understanding of that fact. (23YEARS, FEMALE, POST SSS)

The easiest thing to understand is that eemmm being mentally stable doesn't mean that you don't have to be happy all the time. I understand the mental health very well, is the easiest. (21Years, Male SSS)

For me it's about the question part because it was surprising that I later knew that helping friend about depression is not really good you have to help them through relaxing and playing games with them me I am thinking that problem shared is a problem solved. Through the questions they were now asking if your friend is having a depression problem is it true or false that you are able to help them through I now heard it on the platform that no you don't have to help them that the only way you can help them is through playing games with them and have fun with them so that they can forget about it. I have more understanding and knowledge about mental health (23years, Male, Post SSS)

I like the audio effect on the phone when you are calling. I learnt more stuff about mental health issues because I was not really educated about it before, I like the class because it was fun and interactive. (15YEARS, MALE, SSS)

ii. Skills acquired in self-screening of mental health status - Reflexivity & self-recognition of mental wellbeing/otherwise. Playing the game afforded the respondents the opportunity to reflect on their life, lifestyle, community network and family within the context of mental health and conduct personal screening to assess their wellbeing and that of other people close to them. Some of the examples mentioned in the game were people they recognise and respect this allowed them to reflect without attaching stigma to their mental health status.

All my life I have tried to help people even if will hurt me so that they can be happy but I don't get the same energy back because sometimes at the end of the day I am like why did I do it even someone I am not on good terms with I want to make sure that you are ok I will look for ways to help even when I am lacking but I don't get the same energy back so sometimes you don't have to do everything for them do your best and focus on your life. Recently my mental health has not been great I have been thinking about so many things

working my ass off stressing myself off sometimes I just must rest I am thinking that what's happening? this year must not go like that but here its now happening. I think it's the kind of country we live in recently I was talking to my friend, and she told me that a pack of indomie is 7300 where will I get that kind of money for indomie I am thinking that omo I have to work I have to do this and that I am too young for this kind of stress how old am I? I need to be taken care of. The mental health aspect of the game calmed me down and made me realise that its mental health issue that is making me restless. (20YEARS, FEMALE, POST SSS)

It was useful to me, interactive, touched my mental health somehow it calmed me down and made me think. I felt like mental health questions shouldn't be an issue for me but due to new knowledge learnt from the game made me realize I don't know many things about mental health, and I realized that I have a mental issue and due to the lessons learnt I know that it's not very bad and everyone has it and I don't need to be happy all the time. (23YEARS, FEMALE, POST SSS)

iii. Coping skills acquired - Power hand and self-check-ins.

The easiest thing to understand was that taking a deep breath is one of the tools to calm yourself down. The reason is that you are going to feel relieved because when passing through a stressful situation it's just like placing a burden on yourself. The aspect of maybe assisting your friend that has mental illness or something of such. There is no way you can heal the person you can just play game with the person just to make the person not to feel alone or abandoned then you can find ways of meeting doctors or specialist to assist the person. (22years, Male, SSS)

What I liked about the game is the information I learnt from it about mental health how we can help our friends and the techniques like the power hand technique and how we can check in on ourselves and our feelings. (23years, Male, Post SSS)

I really love the breathing aspect, two the football aspect then three the power-hand aspect. (23years, Male, Post SSS)

4. Innovation and uniqueness of the 4-2-1 digital mindSKILLZ game

I think the language is perfectly ok because almost all the language that was nominated there almost everybody in Nigeria can understand at least 1 of the languages. Any tribe from Nigeria can learn fast and understand it well. I think that the audio sound effect and music is great and cool, I can rate it 4 stars out of 5 stars. (22years, Male, SSS)

The English used was Nigerian English, so it was easy and direct. The AI responding to us was giving us direct message passing direct information which was well understood. For me according to what I wrote the sound was

very very ok the background sound the effect was very good especially the football aspect whenever you get a question correctly you hear goooaaaal I love that. (23years, Male, Post SSS)

All I can say is that they came down to a teenager's level because even when they are answering questions they will pause and play music that attracts me I was even dancing. Like I was eager to hear the next music. It is very rare to come to this kind of gathering and they are talking about football. I mean I don't know anything about football but to come to this place and they are talking about football haaa okay now they have sense. (20YEARS, FEMALE, POST SSS)

It was ok for me because I have been able to know more about football like the other question, they asked that Nigeria is the highest AFCON winner, so I was not happy with that question I choose like we are the highest meanwhile not knowing that we are the lowest, so I was able to know it. (23years, Male, Post SSS)

What surprised me is that we are calling it game game I was expecting an actual game, but it was after the session that I realised that it was just an impactful game. I was thinking it was going to be a physical activity. (24YEARS, MALE, POST SSS)

Well, what surprised me is the power technique on how to check on your feelings and every other thing. I like the way they explain things, I liked the way the questions were being asked and answered, I like the way the host and hostess attended to every question and answer. there is the part of the explanation like I wasn't expecting them to explain the answer I was just really really surprised. (23years, Female, Post SSS)

To me the sound effect was ok but the part I liked the most is that in the football part if they ask you a question and you get it, they will cheer you up and say goooaaaal (15YEARS, MALE, SSS)

5. Recommendations for improvement

The onboarding experience or registration process needs to be improved on most especially the "421" code we are dialling. The time it takes should be improved on because people have short attention span. What would motivate me to invite more friends to play the game is because of the situation of the country right now everybody is going through a lot, a hard time. (23years, Male, Post SSS)

To me I will just say that it is important that when we give our answers whether we are right or wrong especially when we are wrong, and they give us their answers back there should be a way we can share our opinion regarding the answer given as our thought and view of things are different if they can work on that. Also, the fact that moving from one aspect of the game to another was not so smooth we should be able to get to the next session without ending the game.

I think regarding the football aspect it shouldn't just be on AFCON there should be other questions as well, it should be on general football that is why it is a game that makes it fun. (24years, Female, Post SSS)

Building an app for people to know more about it and not only us will be playing the game many people will also go to the app to play the game, but it should be offline game. I will surely keep playing the game because it is fun and educative but I will stop if it keeps repeating the same questions. (18YEARS, FEMALE, SSS)

The topmost of things to do is to create an app because an app gives more room to create so many things like puzzle games for those who don't like soccer, so it won't be gender biased. If this game is basically for the youths, 90%of youths have access to phones that can use app so create an app they will download it and navigate through it. (19YEARS, FEMALE, POST SSS)

There is an easier way to deliver mental health information through counselling and seminar, I learn more when I am together with my fellow teens (face to face versus digital form of learning about mental health issues) it gives lesson vibes, we are interacting and vibing we play small we learn small. Add more things to the mental illness section, eg when you are angry what are the things you can do, I think what they have here as coping skills is for babies because what most teens are going through now is really serious. Childbirth control a girl of 10years old is giving birth and affecting mental health. (15YEARS, MALE, SSS)

When they were asking the questions, it triggered some things (emotions) in me that made me to feel somehow ... although with the questions I eventually got over it with time. There should be access to counselling while on the game. Call this number to speak to a counsellor. Asking us to call after the game someone will be put off, some people might also experience network issues. For instance, while playing the game there should be an option of maybe press 4 if you want to speak to a counsellor. (20YEARS, FEMALE, POST SSS)

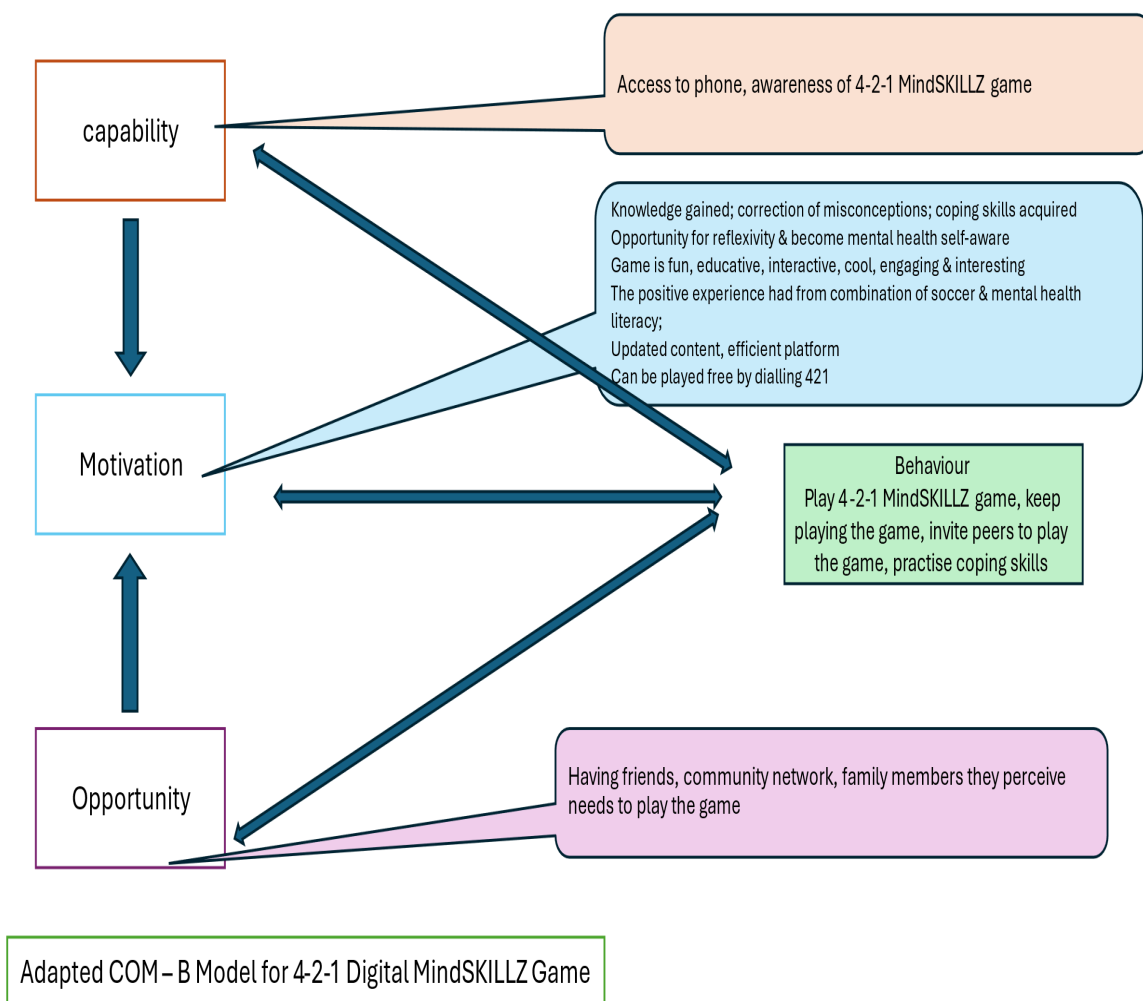
An app could be created for this particular process because for like people that cannot wait for the process of calling calling calling whenever they enter the app they can actually wait on the app no matter the time it takes they will surely wait on the app and again the issue of this timing of calling/trying to connect to them waiting for them to call back because most people we tend not to buy recharge call for calling we buy recharge card for data which is general. It cost 3 naira to call but there is no recharge card of 3 naira. (23years, Male, Post SSS)

For me I think they should add more easier way like the media team should be on ground that will be putting people through before they start the game like this is what you should do ooh. That they will be aware through media processes so that people that didn't know about the game can be made aware. I will love playing the game but it should be updated about more mental health and football information. (23years, Male, Post SSS)

They didn't help me handle my mental health issue (the information was not enough) they just triggered it and they should add something else apart from soccer. The breathing exercise etc included was not enough to calm me down. We want new game apart from soccer, improve the information, access to counselling. I don't know why I am being concerned about the mental health I think they should just help us because these days, the youths are more traumatised than the adults, they should add more information. (23YEARS, FEMALE, POST SSS)

The difficulty while navigating through the sections, the time duration fine given it was educative I feel some people might get bored there should be an option to speak to a counsellor at the beginning of every section that will really help. Change the football aspect to guidance and counselling. I would have considered playing the game again but then, I can't keep eating the same thing because this is a game that will involve playing the same thing over and over again that is why I said liveliness should come in. if it is not the same thing I listened to today that I will listen to tomorrow that is what will make me keep playing the game aside that I won't play the game. (24YEARS, MALE, POST SSS)

It is not interactive enough, go straight to the point, soccer and mental health is not enough (limited topics), some of us need advice they should advise us. If they can improve, I cannot go there to play the game and they keep saying the same thing repeatedly. I learnt a lot, but I need someone to tell me what to do if I am sad if I am angry. If that experience that came to me a long time ago starts coming again, what should I do. I want to know more (respondent compared the game to candy floss and other games that have levels go from level 1 to level 2 etc and said this is why players keep revisiting those games). (20YEARS, FEMALE, POST SSS)



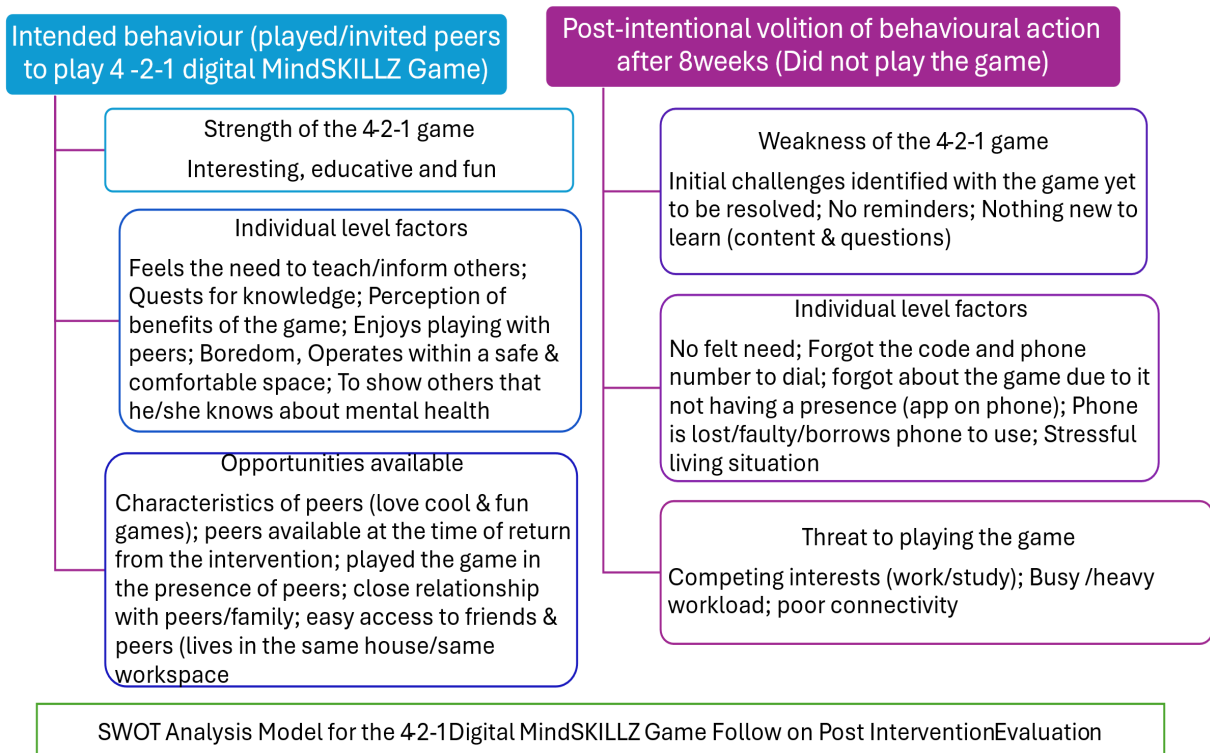
Qualitative Survey - 8 weeks Follow up

The objective was to:

Identify barriers and facilitators that influence respondents translating intention into action and end-user recommendations for sustained and meaningful engagement with the 4-2-1 digital mindskillz game.

22 respondents participated in 3 FGDs, conducted using a modified FGD guide (Appendix 3). The audio recording was transcribed verbatim (Appendix 4) followed by a SWOT analysis to develop a SWOT Analysis Model reflecting constructs that hinders or facilitates translation of intention to play the game post intervention into the desired action (behaviour) by the youths.

Desired Behaviour
Play 4-2-1 MindSKILLZ game, keep playing the game, invite peers to play the game, practise coping skills



A. Respondents play the 4-2-1 game postintervention

At the post intervention FGD, 4 respondents believed they will not play the 4-2-1 game at home because of the challenges encountered (documented in the report submitted March 2024). At the 8weeks follow up, the 4 reported not playing the game but invited peers to play. Among those that intended to play, 9 (50%) had post-intentional volition due to a myriad of reasons displayed in the SWOT analysis model above while the remaining 9 (50%) achieved the intended behaviour. Overall, 13 (52%) youths did not play the 4-2-1 game postintervention at home/work however 11 out of the 13 youths reported inviting their peers to play.

Barriers to playing the game after the intervention

R1: I did not play the game because my phone connection was bad the day I wanted to play it.

R2: I did not have the time to play the game because I was busy at work.

R3: My mobile phone went off (cell phone spoilt) so I did not play the game.

R8: I didn't have the chance and I didn't have a phone then. When I came for the training, I borrowed my mum's phone.

R9: I was busy, so I didn't play the game, and also I forgot about the game

R10: I didn't play the game because I felt that the interacted class helped already hence there was no need.

R11: I didn't play the game because I was busy with a lot of things, and my phone was not working

R16: I didn't play the game because I was busy studying due to the examination I was having during that period

R17: I forgot the code and the number to dial and misplaced the phone I used the last time.

R18: I did not play the game because I was busy with my work

R20: I didn't play the game because my phone got spoilt

R21: I was busy preparing for my JAMB and my phone got spoilt

R22: My phone got spoilt and I was preparing for JAMB. I have been very busy, and everything is stressful I am struggling with school and work. Secondly, I did not have access to the code.

Enablers to playing the game again after the intervention

R4: I played the game to learn more about it.

R5: I played the game because I was bored and less busy.

R6: I played the game during my leisure time to gather more knowledge and information about mental health and because it is interesting.

R7: I played the game again because I found it interesting and to gather more knowledge about life coping skills.

R12: I played the game because I thought of it, and I was interested in playing it

R13: I played the game to show people at home what I went to do at the training centre and to see if there has been changes in the settings

R14: I played the game because I wanted a friend of mine to see what I am doing and everything and stuffs like that in the mental health SKILLZ and that of the football I played it because of the sound of that goal. I played mental health SKILLZ because a friend felt so down emotionally so I played it while he listened to it.

R15: I played the game to gain more knowledge and to introduce it to a friend of mine. To be able to put what I learnt in training into practical and to teach those around me.

R19: I played the game because I was educated more on mental health issues and how to solve them

B. Respondents keep playing the 4-2-1 game

Motivation to keep playing the game

R7: If they add more interesting things and questions to the game like mental health and life coping skills and change the dialling of the numbers I will keep playing the game.

R11: I would have played it if there was any other game in it apart from soccer

R12: I would have played the game more if an app was developed and If the navigating problem is improved

R13: I would have played it more if it was an app. And if the same problem that happened during the training did not persist. Like at the training for the options they asked us click 1 for mental health information. Click 2 for football and when you click on one they will tell you you didn't click any option, the

same problem is still persisting if it was not persisting I would have played more.

R14: I would have played the game more if it was an app, something visual that I can see play on my phone unlike being audio, calling through and more

R15: I would have played the game more if it was an app and if all the complaints made are looked into, the same problem we complained before is still there.

R16: Assuming I did not have an exam during that period I would have played the game and invite my friends to play as well

R17: If there was an app for it, I would have seen the app on my phone and said let me play the game again today so I wish they can create an app for it

R18: Assuming I am less busy I would have played the game but there was no chance

R20: If my phone was working, I would have played the game

R22: What would have made me play the game was if I have access to the codes ad messages about it was coming in and reminding me. If I was getting messages like MTN 303 keeps sending messages to help you with your mental health. With the 4-2-1, I tend to forget whatever is worrying me so if they send messages, I will remember that ooh I have these people here let me go back to them. MTN and some banks (Piggy vest) sends messages on their app. Some are targeted to specific personal data that they have collected for instance I was assaulted on my birthday so every birthday piggy vest will send me a message wishing me a happy birthday and encouraging me not to let the events of that upset my day or have negative effects on my thoughts whereas MTN sends random messages on mental health and sends you a number to call if you will like to talk. The Flow app (where you check Menstruation related information) also sends messages like that.

C. Respondents invite peers to play the 4-2-1 game

The combo nature of the game ensured that at least certain aspects will appeal to individuals. One of the respondents observed that *“For me oooh the girls enjoyed the mental health information while the guys enjoyed the football because they gained more information and knowledge about it”*.

Respondents invited a wide array of individuals to play the game including their parents (mum & dad), neighbours, siblings, cousins, friends, boyfriend, colleagues at work, colleagues at school lessons. In total an estimated 110 individuals were reportedly invited to play the game. Out of the 22 youths involved in the 8weeks follow up, 19 (86.4%) invited others to play, out of these 19, an estimated 50% (10 respondents) claimed that most of their invitees played the game in their presence/used their phone to play the game/they played the game together while the

others were not sure whether the invitees eventually played the game or not due to lack of follow up.

Respondents believed if the following recommendations were put in place they will be motivated to invite their peers to play the 4-2-1 game.

- *Add glo network.*
- *If the game is on a mobile app or website.*
- *Put more explanation on the powerhand*
- *Improve the network/connectivity.*
- *Add more topics and questions under mental health information*
- *If an app is developed and additional questions are added to the football game*
- *The only motivation that will make me invite more of my friends to play the game is If they create an app for it because once there is an app they will surely play it*
- *Me and most of my friends we have dealt with molestation while we were young so if this game is talking about molestation and linking it to mental health*

Sustained benefits (knowledge, attitudinal change and skills) of playing the 4-2-1 game. Below are some of the gains mentioned by the respondents at the 8 weeks follow up session.

R1: Just one, it makes me cheerful always mentally; it makes me able to give advice on mental health (councillors advice)

R2: How to control mental health and I learnt that social media is risky for someone who has mental health issues.

R3: The game made me realise that our mental health is important to us, it also made me know that eating meat all the time is not enough for the diet, it gives me more courage to watch the football match

R4: I learnt more about my mental health; two in the football game I was motivated to participate/watch ball; thirdly it was fun to me.

R8: I gained knowledge on mental health; I gained knowledge about ways in which we can support people with mental health issues.

R11: It helped among my friends because we had an argument and really helped with some of them that had mental health issues. It also helped me with my mental health it made my mood swing change.

R13: From the mental health information, the football knowledge and the mental health skillz I learnt more about mental health, got to know more about football and that when I am depressed, I should speak to a specialist.

R14: I remember that mental health is important actually and not trying to solve other people's mental health issues because it was in the game and eating meat doesn't mean you are eating well.

R15: I gained more knowledge on soccer game, mental skills, and mental health information.

16: I remember the aspect of that football when they were talking about Egypt as the country having the most AFCON cup among the Africans then I also remember that Nigeria female football team is called the super falcon and that we can also consult a friend whenever we are having mental health issues.

17: How to control my mental health, to know how many times Nigeria won the world cup, made me learn more about mental health.

18: It makes me know more about the mental health, it also makes me to know more about how to take care of one's health, and how to react to people with mental health issues.

19: I remember the football history and how social media can affect your mental health, and more educated on how to control mental health issues

22: To always help people with mental health issues and to never let social media affect the way I feel, my anxiety and saying how I feel. To always help a friend who is mentally unstable, to never make social media a threat to my mental health, to try to be less aggressive.