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The Weaknesses of Preconception Health Module Implementation in Preconception Health Education for Adolescents Based on Theory Acceptance Model

Luh Seri Ani

Udayana University

***Corresponding author:** Luh Seri Ani, Udayana University.

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Abstract

The level of adolescent knowledge of preconception health (PH) was related to the high rate of adolescent pregnancy. The PH module was prepared for educational media to increase the knowledge of adolescence. But this effort is not run optimally. This study aimed to analyze the weakness of the PH module of adolescence. The qualitative exploration was conducted in 2020. The subject of study was an adolescent aged 17-24 years old who resides in Sidemen District Karangasem Regency, Bali Province, Indonesia. The informants in this study were chosen by purposive sampling method, consisting of adolescents, the Dean of the Public Health Center, an obstetric & and gynecologist, and a midwife. Data were collected by in-depth interviews and analyzed thematically. There are six sub-themes found in this study that are the global appearance of the module, compatibility of contents, beneficence, and weakness. The weaknesses of the PH module consist of the usual module cover, without anything new, fewer picture illustrations, still conventional, less attractive, too long, and thick content, using scientific language, and low reading interest of adolescents themselves. The PH module was attractive enough for adolescents even though there were some weaknesses found. To increase the interest of adolescent in reading the PH module were suggested to make an attractive design of the PH module by adding picture illustration, using familiar word, and making the content concise.

Keywords: Adolescence, Health Promotion, Preconception Health, Education, Module.

Introduction

Adolescence is the period between childhood and adulthood marked by physical growth, maturation of body structures, and mental and secondary development of sexual characteristics. The adolescent population reaches 20% of the world's population, more than 1,2 million adolescents (85%) live in developing countries around 12 million young women aged 15-19 years become mothers in developing countries every year. It is estimated that 3.6 million abortions occur annually in adolescent girls globall [1]. In Indonesia alone, it is reported that 6.431 adolescents aged 15-24 years have given birth. While in South Africa, pregnancy prevalence among AGYW 10-24 years of age was 25 % [2].

Early pregnancies among adolescents have major health consequences for adolescent mothers and their babies. Adolescent mothers aged 10–19 years face higher risks of eclampsia, puerperal endometritis, and systemic infections than women aged 20–24 years. 4 Additionally, some 3.9 million unsafe abortions among girls aged 15–19 years occur each year, contributing to maternal mortality, morbidity, and lasting health problems [3].

Education level is one of the risk factors for pregnancy in adolescence. Pregnancy in adolescents in the United States is asso-

ciated with lower socioeconomic status, low education, living with a single parent, being a victim of sexual abuse, poor parent-child closeness, and poor parental supervision or regulations of children's activities. Socioeconomic disadvantage, disrupted family structure and limited education, risky sexual behavior such as early sexual initiation, increasing number of partners, and non-use of contraceptives were the factors associated with teenage pregnancies in European Union Countries. The risk factors identified for teenage pregnancy in South Asian countries like Bangladesh, India, and Nepal include low socio-economic background, low educational attainment, disrupted family structure, and poor sexual health practices [4].

The low level of adolescent education also includes adolescent knowledge about preconception health, which is reported to be low ranging from 26,8% - 38,4% [3, 5]. A qualitative study on women of reproductive age in the UK also found that awareness of the importance of preconception health is still low [6]. A qualitative study was also conducted on adolescents in Karangasem district sidemen in 2020 and found that adolescents' knowledge about preconception health was also low [7]. To increase the knowledge of adolescents of PH, PH modules were prepared for adolescents aged 17-24 years old, especially.

The preconception health module is a collection of reproductive health information and interventions to increase women's knowledge and ability to plan a desired pregnancy since adolescence. Whereas preconception health is all interventions given to women of childbearing age who are not yet pregnant to improve pregnancy outcomes [8]. It aims to improve their health status and reduce behavioral, individual, and environmental factors that contribute to poor health outcomes for mothers and children. Its main objective is to improve maternal and child health in short and long termibu and child in the short and long term [9]. PH module is concise of 3 themes that are known reproductive health in women, the reproductive cycle, and reproductive health itself. All content is arranged into 32 pages and given a cover on the front page to enhance the appearance of the module. The content presented in this module is based on the results of interviews with obstetricians and gynecologists, heads of PHC, and representatives of adolescents about the needs of preconception health content in adolescents. This module is structured as a medium for PH education for adolescents.

Using modules for increasing knowledge has been tested in some of the studies but, there is limited evidence about the weakness of modules. Module usage was proven effective in increasing the knowledge of reproduction health among students of SMAN (Government Senior High School) 3 Bantul class XI. There are differences in the knowledge changing of adolescents after and before the reproductive health campaign [10]. Modules were found to be effective in increasing the knowledge, attitude, and practice of the Posyandu (Integrated Service Post) cadre in Sukamerindu dan Sidomulyo's PHC Bengkulu city in the childbearing effort. The childbearing course usage module can increase the knowledge, attitude, and practice of the cadre compared with a control group [11]. The effect of a module of growth and development screening in the cadre was found too to increase the knowledge, and skill of Posyandu's cadre in Bogor Timur dan Merdeka PHC when doing the growth and development screening for under five babies [12].

Based on the theory acceptance model by Fred Davis, the implementation of the module was affected by perceived usefulness, ease of use, and intention. Perceived usefulness is defined as benefits that individuals believe can be obtained when using information technology (IT). In addition, the principle of usefulness is also interpreted as a person's level of trust if implementing PH modules will improve their performance. While the perception of ease of use of the module is defined as the level of trust when using the PH module, adolescents will be free from exhausting efforts or efforts. The perception of benefits and ease of use of the module will cause intention, namely the tendency of adolescent behavior to use the preconception health module as an educational media [13].

Until now, research that identifies the factors of weaknesses using the module as a media education is still limited. Even throughout the researcher's knowledge, there has been no research that identifies the weaknesses of the PH module for adolescents. Several existing studies found that the use of modules in increasing the knowledge of students' class XI at SMA BSS Malang City obtained varying results. This is thought to be due to characteristic factors, learning speed, and psychological students such as shyness in expressing opinions in class [14]. Another different study was found that the knowledge of the students who given modules on basic health and occupational health of students at SDN (Nasional Primary School Utama 2 Tarakan City did not experience increasing knowledge, significantly. That was predicted to have an association with color appearance, picture of the cover, and the hardness of language usage. The module content is less attractive for students at Primary School [15].

Based on that, this study aimed to identify the factors that constrain the implementation of PH modules for adolescents.

Materials and Methods

An exploratory qualitative study was conducted to obtain data on the implementation of the preconception health module and the factors that hinder the implementation of the preconception health module for adolescents. The subject is teenagers in the category of late adolescence, namely the age of 17-25 years.

Informants in this study were selected purposively consisting of obstetrics and gynecology specialists, heads of health centers/ youth program holders, information and computer experts, and adolescents. informant inclusion criteria are informants who are willing to participate by filling out the consent form to participate. The exclusion criteria were participants who did not complete the required interview. Informed consent was carried out on all informants to ask for consent as participants in this study. Data was collected by interview method. The interview was conducted at the agreed place in July-August 2021. Because the research was conducted during a pandemic, face-to-face interviews directly apply the covid 19 protocol. Data were analyzed by thematic method, where from the results of the interview, the interview manuscript was compiled first and then the theme was arranged.

This research has received ethical approval from the Udayana University medical faculty with the number 1746/UN 41.2.2.VII.14/LT/2020

Results and Discussion

Informant's Characteristic

The mean age of adolescent informants is 19.4 years, and the mean of additional informants is 45.8 years. The informant's lowest education level is senior high school and the highest is undergraduate. Most of the informants have no occupation (Ta-

Table 1: Informant Characteristics

Code	Participant	Age (year)	Sex	Education	Occupation
D1	Obstetrics and gy-necology spe-cialist	49	P	Undergraduate	Doctor
D2	Head of health cen-ter/ youth's pro-gram holder	46	L	Undergraduate	Doctor
I1	Information and computer experts	38	L	Undergraduate	Lecturer
R1	Adolescent	16	L	Senior high school	None
R2	Adolescent	24	L	Senior high school	None
R3	Adolescent	17	P	Senior high school	none
R4	Adolescent	18	P	Senior high school	None
R5	Adolescent	20	L	Senior high school	None
R6	Adolescent	19	L	Senior high school	None
R7	Adolescent	22	P	Senior high school	None
OT1	Teen parents	55	L	Senior high school	None
OT2	Teen parents	41	P	Undergraduate	Private employ-ee

Weaknesses of the PH Module for Adolescents

In Table 2, 3 themes and 5 sub-themes of weaknesses of the adolescent morning preconception health module are displayed. The weaknesses of the KP module consist of the themes of ease to use, perceived usefulness, and intention. While the subthemes consist of module design, the use of foreign languages and terms, the use of technology, the suitability of module content, and the reading interest of adolescents.

Table 2: Themes and Sub-Themes of Weaknesses in the Implementation of Preconception Health Modules for Adolescents

Quotes	Sub-themes	Themes
1. Lack of image illustration, Con-ventional form 2. No uniqueness, 3. The contents of the module are too long/thick, 4. Irregular writing format	The Module design	Perceived ease of use
1. Use of foreign languages and terms is relatively frequent and difficult to understand	Use of foreign languages and terms	
1. Modules in hardcopy form so limited reading opportunities	Technology utilization	Perceived usefulness
2. Need to adjust module content to the target audience	Module content suitability	
1. Low adolescent reading interest	Less reading interest	Intention of use

The PH module is considered to have weaknesses based on easy to use in terms of design including lack of image illustrations, still conventional in the appearance of the module, irregular writing formats and the use of Latin which is quite frequent. Here is an excerpt of the informant's statement about the drawbacks of the preconception health module for adolescents.

"…..Kurangnya gambar yang bisa menarik minat remaja untuk membaca…Kurang gambar tentang reproduksi ….Mungkin bisa ditambahkan gambar….." The lack of images that can attract teenagers to read... Less images about reproduction.... Maybe you can add an image (R4.18)

"……. Cover perlu dibuat lebih menarik untuk menambah minat baca karena sasarannya remaja, perlu penambahan ilustrasi gambar pada setiap topiknya untuk mudah dipahami oleh remaja…" Covers need to be made more interesting to increase reading interest because the target is teenagers, it is necessary to add image illustrations on each topic to be easily understood by teenagers (I1, 38)

"…….Sejauh ini kelemahannya terkait gambar-gambar perlu ditambhkan terkait alat reproduksi dan gambar pra konsepsi…." So far, the weakness related to images needs to be added related to reproduction and preconception images (R5, 20)

Another drawback encountered is that the module is still considered conventional or nothing special as the following quote. The display of the module is more writing than pictures so it may cause boredom for teenagers when reading this module.
'……Belum ada yang terlalu spesial, karena saya sering membaca modul seperti ini.
Tapi ini bagus juga, karena saya belum tentu bisa membuat modul sebagus ini….." Nothing too special yet because I often read modules like this. But this is good too, because I can't necessarily make modules as good as this (D1, 49)

"…..Secara umum, modul ini menurut saya pribadi masih berupa modul gaya konvensional dimana didominasi tulisan. Jika targetnya adalah remaja, maka dilihat dari sudut pandang penerima ilmu (siswa/i atau mahasiswa/i atau remaja lain), maka saya yakin 90% nya akan tidak membacanya kecuali terpaksa karena tulisannya terlalu banyak, atau mereka adalah semacam ilmuan yang memang sudah terbiasa akan bahasan yang penuh tulisan….." In general, this module in my opinion is still a conventional style module where writing is dominated. If the target is teenagers, then from the point of view of the recipient of knowledge (students or students or other teenagers), then I am sure 90% of them will not read it unless forced because they have too much writing, or they are a kind of scientist who is already accustomed to a full discussion (D1, 49)

There are also informants arguing that the format of writing still needs to be regulated, such as the following excerpt.
"……. jenis huruf yang digunakan terlalu mepet (jarak antar huruf) dan jarak antar baris yang terlalu sempit membuat mata lebih cepat lelah ketika membacanya melalui layar komputer/gawai. Mungkin sebaiknya menggunakan huruf sans atau menyesuaikan jarak antar barisnya…". the typeface used is too tight (the distance between letters) and the distance between lines that are too narrow makes the eyes tired faster when reading it through a computer screen/device. It may be best to use sans or adjust the spacing between the lines (I1, 38)

Another easy-to-use weakness also conveyed by informants is the use of medical language and poorly understood terms, such as the following quote.
"……..bahasa yang digunakan masih banyak bahas medis yang mungkin akan kurang dipahami oleh remaja……." The language used is still a lot of medical discussion that may be poorly understood by teenagers (R6, 19)

"…….Mungkin dibagian-bagian yang sulit dipahami pembaca/ pada bagian yang membahas isi modul dengan kata ilmiah yang jarang didengar (apalagi pembaca yang hanya sekedar membaca) mereka akan cenderung melewati bacaan-bacaan tersebut tanpa menghiraukan apa arti dari tulisan pada modul yang tentunya mengurangi pengetahuan yang diberikan pada modul….." Maybe in parts that are difficult for readers to understand / in parts that discuss the contents of the module with scientific words that are rarely heard (especially readers who just read) they will tend to skip these readings regardless of what the writing in the module means which certainly reduces the knowledge provided in the module (R2, 24)

The PH module is also considered to have weaknesses based on perceived usefulness such as limited use of technology and the incompatibility of module content with the target audience, as quoted below.
"……...Ya menambah wawasan jika mereka bisa mendapatkan dengan mudah modul ini ….mungkin bisa membaca dan meresapi isi dari modul ini ya, remaja akan lebih mengenal dirinya sendiri…." Yes, add insight if they can get this module easily.... maybe they can read and perceive the contents of this module, yes, teenagers will know themselves better (OT,1)

"……Menurut pandangan saya, modul ini dapat menambah wawasan remaja hanya terlalu tebal sulit dibawa….. In my view, this module can add insight to teenagers just too thick difficult to carry (D1, 49)

In addition, the Module is also considered less presenting information through internet media or information technology such as the following quote.
"……Ya, karena modul sudah memuat sedemikian informasi dan agar mudah dipahami perlu pemanfaatan teknologi atau internet sehingga bisa ditemukan dengan mudah…." Yes, because the module already contains such information and to be easy to understand, it is necessary to use technology or the internet so that it can be found easily (R3, 17)

This preconception health module is considered to have not contained things that should be known by adolescents related to reproductive health. The assessment of the suitability of the module is delivered as follows.

"….modul ini lumayan jika remaja dengan memililik daya tangkap bagus,dan penyampai modul yang bisa mengkomunikasikan isi modul sesuai gaya remaja yang jadi sasaran…." This module is not bad if the teenager has good grasping power, and the module presenter who can communicate the contents of the module according to the style of the targeted teenager (D2,46)

"…. isi modul ini kurang membahas mengenai hal-hal yang sangat berguna pada usia ini dan sering terjadi pada kehidupan sehari-hari ….". The content of this module does not discuss things that are very useful at this age and often occur in everyday life (R2, 24)

Based on the aspect of intension, the KP module is considered less likely to cause reading interest for teenagers as the following quote.
"……sangat bermanfaat mudah di mengerti jika para remaja membacanya…." It is very useful to understand if teenagers read it (R3, 17)

"……sangat bermanfaat bagi remaja khususnya wanita …." Very beneficial for teenagers especially women (R6, 19)

"…..bagi remaja, jika bahasa yang digunakan mudah di mengerti dalam modul akan bermanfaat bagi ksehatan reproduksi…." For adolescents, if the language used is easy to understand in the module it will be beneficial for reproductive health (D1, 49)

"…. sudah bisa membuka wawasan bagi remaja. Sangat mampu apabila remaja mau membaca dan memahami isi dari modul….. Ya, karena modul ini berisi pengetahuan yang dapat menambah wawasan remaja….." it has been able to open insights for teenagers. Very capable if teenagers want to read and understand the contents of the module..... Yes, because this module contains knowledge that can add insight to teenagers (D2, 46)

The weakness of the PH module was found in 3 Themes and 5 sub-themes that are easy to use, perceived usefulness, and intention. The sub-themes of the PH module consist of less attractive module design, using a foreign language and term frequently, lack of IT Utilization, suitability of module content to adolescent age, and less reading interest of adolescence. The design of this module was evaluated to have some weaknesses in lack of picture illustration use, the KP module was not unique, look like a conventional module, the content was too long and thick, and the systematics of wright was irregular so less attractive to read or learn.

Learning by using attractive and easy-to-understand modules will increase learning effectiveness or be efficient in increasing readers' knowledge of modules. Learning using modules is also often referred to as self-study. This Independent learning activity has the limitation that development cost was expensive, needs much time, and demands more high discipline, and perseverance that may not be haven by students [16].

Besides that, this module did not discuss adolescent boys' health meanwhile getting a healthy pregnant needs support from a couple with a body fit condition. The future study has to explore the issue of an inequitable male access to health care services and the public awareness of the effort to fulfill that disproportionate care services [17].

The design appearance of the PH module has been attractive for adolescents to read all the module content and apply it whenever and wherever according to adolescent needs. Therefore, the PH module should be arranged systematically, attractively, and clearly. The good module should be fulfilled self-instructional, self-contained, stand-alone, adaptive, user-friendly, and consistent criteria [18]. The module was arranged must be able to make adolescents understand the content of the module by themselves, load the information completely, and highly adaptive to knowledge and technology update. The module setting also should fulfill the rule of familiarity with the user and consistency in using font, space, and format of the module.

Adolescents also perceived the PH module as weak in design in that is less of using picture illustration, and its appearance is still conventional. This matter was predicted to affect adolescents' motivation to read the PH module, therefore the increasing knowledge of preconception health may be uncovered. Using picture illustrations can help adolescents to know the content of the PH module easier. This matter corresponded with the study that was done in students' Science XI class senior high school, which found that good visualization will raise the knowledge of students of the content that was taught [19]. Learning with figures was most important to make a clear understanding of students, therefore by using figures the students will focus more on learning objects that have not seen yet previously. The same result was also obtained study in students' third class at Mi Fathul Khoer school was found that learning using visual media of Pancasila content affected the learning motivation of student [20].

The form of the PH module conventionally was perceived as less attractive for adolescence. PH module impressed not seen unique of cover, content, and the sharing method. Some of the studies found differences in learning effectiveness by using conventional vs non-conventional modules. The study of students in the X class of SMA N 3 Pontianak in learning electronic and non-electronic solution topic by comic media have evidence there is a difference in student learning achievement between using comic media and the practicum method [21]. This was proved that module form that unique and effective learning method therefore thin method can apply to the preconception health learning method.

In this research was also found that the perceived usefulness theme consists of 2 sub-themes that are technology utilization and the compatibility of content modules. The PH module was evaluated to have a weakness in hardcopy module form therefore access range was limited. According to some research results, differences in learning outcomes between subjects who used conventional modules and e-module. A study who did in students' VII class at MTs Negeri (same as senior high school) 5 Jember found deference learning outcomes from students who teach using video and conventional learning [22]. Another research was found the opposite result that conventional modules more able to increase the value of learning depending on e-learning of nursing documentation topics at the nursing program Tanjung Pura University Pontianak.

The increase of pre and post-test value learning of nursing content is better for students who learning using conventional than e-learning modules [23]. This study was supported by a study focusing on the comparison between e-learning methods and conventional methods (face-to-face) to find out the weaknesses and strengths of e-learning applied at Muhammadiyah University in Sidoarjo. Based on the results of the study it was found that the conventional method (face-to-face) is still considered better by students than e-learning because it is easier to understand the material and easier to interact with the teacher. However, e-learning itself also has advantages compared to conventional, namely in terms of flexibility in lecture time and ease of collecting assignments [24].

The weakness of the PH module of perceived usefulness aspect was the compatibility of module content with an age of adolescence. The content of the PH module was complete enough but more suitable when this module was reserved for adults or the last period of adolescence. Adolescence is a period of prenatal development between childhood and adulthood that includes biological, cognitive, and social-emotional changes [16]. Biological, cognitive, and social-emotional changes that occur range from the development of sexual function, and abstract thinking processes to independence. Adolescence lasts between the ages of 13-18 years. Early adolescence is roughly the same as junior high school and includes most pubertal changes. Late adolescence designates approximately after age 15. Adolescence is one of the phases that could prepare for the next phases such as the preconception phase to the next phase. Therefore, the content of

the module needs to be adjusted for adolescents by discussing things that are often experienced by adolescents in everyday life.

The weakness of the PH module from the aspect of the intention of use is the lack of interest in reading teenagers. The selection of the right module design and color can make this module comfortable to read. An attractive module cover, and a simple and beautiful module layout can lead readers to understand the contents of the module. In addition, the format, organization, attractiveness, font size, spacing, and consistency of the modules are also able to play a function in effective learning. Learning modules are one of the learning materials that can be used by students independently. The advantages of the module, among others, can increase the motivation of the reader of the material in the module according to the ability of the reader. Learning with modules highly values individual differences, so that readers can learn according to their ability level, and learning is more effective and efficient [16].

A PH module will be useful if teenagers are willing to read it. By reading, adolescents' insights related to preconception health may increase. This is supported by the results of the study on the influence of basic occupational health module education on children's knowledge at Utama 2 elementary school Tarakan City which found that there was a significant difference after being given basic of occupational health module education. Students' knowledge scores increase after receiving basic Occupational Health and Safety module education [15].

The potential bias in this research maybe came from the population of research. The subject of this research was only adolescents who are studying, therefore less representative of the population. Based on the research area, the informant in this research only came from one district area therefore may be the result was less variation 64.

Conclusions

The weakness of the PH module consists of 3 themes are perceived ease of use, perceived usefulness, and intention of use. The sub-themes are the design of the module was less attractive, using a foreign language and term frequently, less information technology utilization, the compatibility of the content of the module with adolescent usage, and the low reading interest of adolescents. This research suggested making the design of the cover, and shape of the module more attractive by more added picture illustrations, using the familiar word in sentences, and making module more concise.

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