

ORIGINAL RESEARCH

Intention to make preconception lifestyle changes among married men in an urban primary care clinic and its association with self-efficacy

Siti Solehah Ahmad Mazlan¹, Irmis Zarina Ismail^{2,*}, Navin Kumar Devaraj²¹Trong Health Clinic, Ministry of Health, 34800 Taiping, Perak, Malaysia²Department of Family Medicine, University of Putra Malaysia, 43400 Serdang, Selangor, Malaysia***Correspondence**irmiismail@upm.edu.my
(Irmis Zarina Ismail)**Abstract**

Men's lifestyle is a relevant factor influencing pregnancy outcomes; however, their participation in preconception health is often overlooked. Therefore, the objective of this study is to determine the prevalence of men's intention to implement preconception lifestyle changes and the factors that influence it. This single-centre, cross-sectional study used systematic random sampling to invite 352 married men with pregnancy plans who attended the clinic from February until April 2023. The respondent's intention, self-efficacy, and social influences regarding preconception lifestyle changes were assessed through a validated self-administered questionnaire. A median score of 5 (minimum = 0, maximum = 10) was used as the cutoff to categorise intention as either low or high as the outcome variable. A total of 352 respondents were invited, and 284 (79.6%) men completed the questionnaire. Overall, 56.7% (n = 161) of married men indicated high intentions to make preconception lifestyle changes. The positive predictors of the intention to make preconception lifestyle changes among married men were having attended preconception counselling (adjusted odds ratio (aOR) = 13.33, 95% confidence interval (CI) = 2.82–63.02, $p = 0.001$), having higher self-efficacy (aOR = 1.76, 95% CI = 1.39–2.24, $p < 0.001$), influence of social norms (aOR = 1.39, 95% CI = 1.03–1.87, $p = 0.030$), and social influence from recognising the importance of other's opinions (aOR = 1.23, 95% CI = 1.12–1.35, $p < 0.001$). More than half of the respondents have the intention to make preconception lifestyle changes. Preconception lifestyle interventions should focus on fostering self-efficacy among men with substance dependence to facilitate behavioural changes by leveraging their social influences.

Keywords

Preconception; Lifestyle changes; Men; Intention; Self-efficacy; Social influences

1. Introduction

In Malaysia, preconception healthcare provides couples and single men and women within the reproductive age range with an opportunity to optimise their chances of achieving a safe and successful pregnancy [1]. The Centers for Disease Control and Prevention defines preconception health as the health of women and men during their reproductive years, within which they are able to conceive a child [2]. Preconception health among men is relevant to couples' reproductive lives. Promoting the active involvement of men in preconception preparation is potentially beneficial, as men who actively plan for pregnancy are more inclined to stop unhealthy lifestyles and adopt healthier eating habits in preparation for pregnancy than other men [3, 4]. Promoting men's preconception health presents an opportunity to improve their well-being by providing them access to primary health care [5]. Preconception health in men can enhance sperm quality and count, which can be adversely affected by many factors such as alcohol consumption,

drugs, poor diet, caffeine intake, radiation, chemotherapy, and testicular hyperthermia [5, 6]. Men who typically consumed more than five units of alcohol per week exhibited a decline in various aspects of sperm quality [7]. Emphasising the reduction of alcohol consumption during preconception care counselling is essential to prevent poor sperm quality.

Men play significant roles in ensuring their spouse enters a healthy reproductive life and family relationship. Preconception care for men can improve women's health by preventing sexually transmitted diseases through early screening, treatment and the use of dual protection during appropriate situations [4, 5]. Men who embrace good preconception health would acknowledge the role of family planning and that successful family planning practice is essential to healthy preconception health [3, 8]. Women, especially among Asian couples, still refer to their husbands for direct or indirect approval for family planning. In Malaysia, women still identify the lack of their husbands' consent as a barrier to accepting contraception, highlighting their reluctance to do so

independently [9]. In addition, preconception health in men can provide an opportunity to address their behaviours that might result in domestic violence and multiple sexual partners [4, 5]. Prioritising preconception health has encouraged men to enhance their parental ability by recognising their crucial roles as parents during pregnancy and after childbirth, ultimately contributing to establishing healthy families [5]. In summary, men's involvement in preconception health and care offers an opportunity to support women's positive health and healthcare-seeking practices [10, 11].

The importance of involving men in preconception health is indisputable. Nonetheless, men's participation in preconception health is not easily assessed. Men have demonstrated poor health-seeking behaviour, especially in matters related to reproductive health [10, 12]. Shawe *et al.* [3] reported that only 19.1% of men had visited a general practitioner or healthcare professional to consult on pregnancy. Lim *et al.* [13] reported that men were less inclined than women to perceive the importance of seeking healthcare for preventive health concerns. However, most men (83%) did not change their preconception lifestyle to improve health and fertility [14]. Therefore, while men's participation in embracing good preconception health is questionable, it should still be emphasised. Despite men exhibiting an awareness regarding a healthy lifestyle, they do not echo similar attitudes in preparing for pregnancy [15, 16]. Nonetheless, men want to be included in preconception health. Since the participation of men in preconception health care is not compulsory in Malaysia [1], information on how men in Malaysia perceive preconception health care and preconception health is limited. Therefore, this study aimed to investigate the intention of men towards making lifestyle changes in preparation for pregnancy and the factors influencing it.

2. Materials and methods

2.1 Study design and setting

This cross-sectional study involved 284 married men at a public health clinic in the centre of Kuala Lumpur, the largest city in Malaysia, covering an area of 243 km². The patients visiting this public health clinic are of various ethnicities, including Malay, Chinese and Indian, closely resembling the Malaysian population. Married men aged 18–45 years old with wives of reproductive age (18–49 years), not on permanent contraception (bilateral tubal ligation and hysterectomy), and planning to have (more) children who attended this public health clinic between February and April 2023 were invited to participate in this study. Foreigners and those who could not understand Bahasa Melayu or English were excluded. A sample size was determined using a single sample proportion with $Z = 1.96$ at a 95% confidence interval and an acceptable margin of error of 0.05. Based on the 19% prevalence of men who attended preconception counselling before pregnancy [3] and a non-response rate of 35%, the minimum estimated sample size was 236.

2.2 Data collection

The participants were identified from the main list of daily registrations and selected using systematic random sampling with an interval number of two, which was chosen based on the number of men with spouses of reproductive age who attended the public health clinic per month and the expected number of days for data collection. The first respondent was selected from the second man who registered on the first day of the data collection. Then, every other man was invited to participate in the study. Eligible participants were approached, and the study's purpose and nature were explained before they were asked to provide verbal and written informed consent to participate in this study. The self-administered questionnaire was distributed via a quick response (QR) code. The participants had to answer all questions before the questionnaire could be submitted. The principal investigator was available for clarification and guidance when necessary.

2.3 The questionnaire

A validated questionnaire on the intention to make preconception lifestyle changes by Goossens *et al.* [17] was adapted and adopted. The questionnaire underwent forward and backward translation from English into Bahasa Melayu by two family medicine specialists interested in men's health and two language experts in Bahasa Melayu and English [18]. It comprised 70 items grouped into six sections (A–F). Section A collected information on sociodemographic and clinical characteristics. Sections B and C assessed the intention and self-efficacy in making preconception lifestyle changes, each including six general healthy behaviours and four specific preconception behaviours. Each section comprised ten items; each Yes answer was given 1 point, and each No or Not Relevant answer was given 0 points. The scores for both sections ranged from 0 to 10 points; higher scores represent greater intention and self-efficacy in making preconception lifestyle changes.

Section D assessed attitudes toward pregnancy preparation and comprised four items that examined beliefs about the positive and negative consequences of preconception preparation, assessing views on a healthy lifestyle during the preconception period by both partners on pregnancy outcome. Responses were scored on a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree. All responses were arranged positively except for question three, which was reverse scored.

Section E consisted of 12 questions on the social influence to perform the preconception lifestyle changes, which were placed into five subgroups: (i) social influence of close social environment (*e.g.*, own expectation on performing a healthy lifestyle; supporting partner to improve their health before pregnancy; expectation from partner, family, friends, and colleagues to live a healthy lifestyle before pregnancy), (ii) social norms (*e.g.*, other men also live healthy/healthier before pregnancy), (iii) social influence of healthcare provider (HCP; *e.g.*, recommendations from HCPs to make preconception lifestyle changes), (iv) social influence of media (*e.g.*, pressured by media to make preconception lifestyle changes), and (v) recognising the importance of other's opinion regard-

ing preconception health behaviours (e.g., opinions of wives, family members, friends, colleagues and HCPs). Responses were scored on a five-point Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neither agree nor disagree, 4 = agree, and 5 = strongly agree.

Section F assessed knowledge on preconception health. It comprised 17 items assessing knowledge on (i) tobacco, alcohol and substance abuse; (ii) nutrition; (iii) family planning; (iv) medications; and (v) infection disease and immunisation.

The questionnaire underwent validation by two family medicine specialists and one obstetrics and gynaecology specialist to ensure its content validity. The content experts suggested using the five-point Likert scale for the attitude and social influences section instead of the six-point Likert scale from the original questionnaire to improve clarity and minimise selection bias. Face validity was assessed among 33 married men from Klinik Kesihatan Setapak, Kuala Lumpur. A Cronbach's alpha of at least 0.70 indicates adequate internal consistency [19]. In this study, Cronbach's alpha was 0.74 for intention to make preconception lifestyle changes, 0.78 for self-efficacy in making preconception lifestyle changes, 0.76 for attitude towards pregnancy preparation, 0.75 for social influence to perform the preconception lifestyle changes, and 0.87 for knowledge on preconception health.

2.4 Data analysis

The data were analysed using the Statistical Package for the Social Sciences software (version 27.0, IBM Corp., Armonk, New York, NY, USA). Categorical variables are reported as frequencies and percentages, and continuous variables are reported as the median and interquartile range (IQR). Bivariate analyses were performed to assess the association between the dependent variable (intention to make preconception lifestyle changes) and categorical independent variables (race, educational level, employment status, monthly household income, medical illness status, body mass index (BMI), practising family planning method, and have attended preconception counselling at least once). The outcome variable, indicating the intention to make preconception lifestyle changes, was categorised into low- and high-intention groups based on the median score; those with scores above the median were classified as having high intention. The association was tested with a chi-square test. A p -value of < 0.05 was considered statistically significant.

Simple logistic regression analysis was conducted to test the dependent variable's associations with continuous independent variables (age, number of children, the total score of self-efficacies in making preconception lifestyle changes, the total score of attitudes towards pregnancy preparation, the total score of social influence in making preconception lifestyle changes, and the total score of knowledge on preconception lifestyle changes) and categorical independent variables (smoking and alcohol status, recreational drug and supplements use and BMI). For self-efficacy, attitudes, and social influences, a higher score reflects a higher degree of that attribute. Then, we used multivariate logistic regression with backward selection to identify the factors (p -value of < 0.25) [17] associated with the intention to make preconception

lifestyle changes. A p -value of < 0.05 was considered statistically significant.

3. Results

3.1 Demographic characteristics of the respondents

This study invited 357 men attending Klinik Kesihatan Kuala Lumpur to participate, of which 289 agreed and 68 refused. Five of the 289 who agreed to participate did not complete the questionnaire, leaving 284 complete responses. Therefore, the response rate was 79.6%. The respondents' sociodemographic characteristics and the couple's reproductive practices are presented in Tables 1 and 2, respectively.

3.2 Prevalence of the intention to make preconception lifestyle changes

The median score of intention to make preconception lifestyle changes among respondents was 5 (IQR = 2). The respondents' answers to the questions related to the intention to make preconception lifestyle changes are summarised in Table 3. Overall, 56.7% ($n = 161$) of married men indicated high intentions to make preconception lifestyle changes. Most married men indicated the intention to adopt a healthy lifestyle before their partner becomes pregnant (90.1%, $n = 256$) and support their partner to perform preconception lifestyle changes before pregnancy (95.8%, $n = 272$). They indicated an intention to search for information or advice on how to become pregnant healthily (77.5%, $n = 220$). Of the 97 respondents who smoked, 43 (44.3%) indicated they intended to stop smoking before their partners became pregnant. Of the 20 respondents who consumed alcohol, 7 (35%) indicated an intention to reduce their drinking habits before their partners became pregnant. In addition, 64.4% ($n = 67/104$) of the respondents indicated an intention to consult HCPs about their medications or herb intake before their partners became pregnant.

3.3 Respondents' self-efficacy in making preconception lifestyle changes

The median score for self-efficacy in making preconception lifestyle changes among respondents was 6 (IQR = 1). The respondents' answers to questions related to self-efficacy in making preconception lifestyle changes are summarised in Table 4. Most had high self-efficacy in adopting healthy lifestyles (98.2%, $n = 279$), searching for information or advice on how to become pregnant healthily (91.2%, $n = 259$), eating healthily (89.1%, $n = 253$), avoiding testicular hyperthermia (83.5%, $n = 237$), and supporting their partner to perform preconception lifestyle changes (96.1%, $n = 273$). Of the 284 respondents, 70.4% ($n = 200$) indicated they could attend preconception consultations with a HCP.

3.4 Social influences on respondents' intention to make preconception lifestyle changes

The median score (IQR) for each social influence were as follows: 17 (IQR = 4) for social influence of close social

TABLE 1. Respondents' sociodemographic characteristics (N = 284).

Variables	n (%) or median (IQR)
Age (yr)	32 (24)
Number of children	
None	64 (22.5)
At least one	220 (77.5)
Race	
Malay	246 (86.6)
Non-Malay	38 (13.4)
Education	
No formal primary or secondary education	72 (25.4)
College/diploma or higher	212 (74.6)
Income	
<4850 RM	219 (77.1)
≥4850 RM	65 (22.9)
Smoking	
Yes	97 (34.2)
No	187 (65.8)
Alcohol consumption	
Yes	20 (7.0)
Social drinker	7 (35.0)
Regular drinker (1–4 times/week)	13 (65.0)
No	264 (93.0)
Recreational drugs	
Yes	5 (1.8)
No	279 (98.2)
Taking supplements	
Yes	104 (36.3)
No	180 (63.4)
Medical illness	
Yes	49 (17.3)
No	235 (82.7)
BMI [20]	
Underweight (<18.5)	4 (1.4)
Normal weight (18.5–22.9)	50 (15.6)
Overweight (23.0–27.4)	111 (39.1)
Obese (≥27.5)	119 (41.9)

IQR: interquartile range; BMI: body mass index.

environment, 4 (IQR = 1) for social norms, 5 (IQR = 1) for social influence of HCPs, 2 (IQR = 1) for social influence of media, and 21 (IQR = 6) for recognising of importance of others' opinions. Most respondents regarded the social influences of HCPs (96.4%, n = 274) and their close social environment (partners, family members, friends and colleagues; 89.8%, n = 255), and 94.7% (n = 269) agreed that their partner,

TABLE 2. Couple's reproductive practices (N = 284).

Variables	n (%)
Family planning practice	
Yes	158 (55.6)
Barrier method/condom	69 (24.3)
Oral contraceptive pills	22 (7.7)
Intramuscular hormone injection	17 (6.0)
Intra-uterine contraceptive device	9 (3.2)
Implanon	11 (3.9)
No	126 (44.4)
Have attended preconception care	
Yes	25 (8.8)
No	259 (91.2)

friends, family and colleagues would recommend and support them to make preconception lifestyle changes. The opinion of their wives about preparing for pregnancy was assessed as the most important (95.8%, n = 272), followed by healthcare professionals (96.5%, n = 274).

3.5 Predictors of the intention to make preconception lifestyle changes

The positive predictors of the intention to make preconception lifestyle changes among married men were having attended preconception counselling (adjusted odds ratio (aOR) = 13.33, 95% confidence interval (CI) = 2.82–63.02, $p = 0.001$), having higher self-efficacy (aOR = 1.76, 95% CI = 1.39–2.24, $p < 0.001$), influence of social norms (aOR = 1.39, 95% CI = 1.03–1.87, $p = 0.030$), and social influence from recognising the importance of other's opinions (aOR = 1.23, 95% CI = 1.12–1.35, $p < 0.001$). The factors associated with the intention to make preconception lifestyle changes in univariate simple and multivariate logistic regression analyses are listed in Tables 5 and 6, respectively.

4. Discussion

Men in Kuala Lumpur (the respondents) demonstrated less intention to make preconception lifestyle changes than their counterparts in Western countries [17]. Currently, no published evidence describes similar issues among men in Malaysia or other Asian countries. Nonetheless, the men in our study scored better in some aspects of the intention. Over 90% of our respondents showed a greater intention to adopt a healthy lifestyle and support their spouses through preconception care, compared to 85% in Goossens *et al.* [17]. The greater intention to adopt a healthy lifestyle could be because our respondents planned to have (more) children, compared to only 37% of participants planning pregnancy in less than one year in Goossens *et al.* [17]. Therefore, following a healthy preconception lifestyle is more relevant for these men. Indeed, pregnancy planning is associated with increased awareness of the need for preconception behavioural changes [21], which is further emphasised by Maas *et al.* [15], who showed that prospective fathers in England had a

TABLE 3. Intention to make preconception lifestyle changes.

Intention	Yes (%)	No (%)
Adopt a healthy lifestyle before your partner becomes pregnant	256 (90.1)	28 (9.9)
Search for information or advice on how to become pregnant in a healthy way before your partner becomes pregnant	220 (77.5)	64 (22.5)
Eat healthily before your partner becomes pregnant	213 (75.0)	71 (25.0)
Avoid testicular hyperthermia (exposure to abnormally high temperatures to the testicles (<i>e.g.</i> , prolonged sitting, hot baths, saunas, tight underwear and putting a laptop on your thighs)) before your partner becomes pregnant	162 (57.0)	122 (43.0)
Attend a preconception consult with a healthcare provider before your partner becomes pregnant	100 (35.2)	184 (64.8)
Support your partner to perform a preconception lifestyle before they become pregnant	272 (95.8)	12 (4.2)
Reduce drinking alcohol before your partner becomes pregnant (n = 20)	7 (35)	13 (65)
Stop smoking before your partner becomes pregnant (n = 97)	43 (44.3)	54 (55.7)
Reduce weight before your partner becomes pregnant (BMI >23 kg/m ² , n = 230)	140 (60.9)	90 (39.1)
Discuss medications or herb use with a healthcare provider before your partner becomes pregnant (n = 104)	67 (64.4)	37 (35.6)

BMI: body mass index.

TABLE 4. Self-efficacy in making preconception lifestyle changes.

Self-efficacy	Yes (%)	No (%)
Able to adopt a healthy lifestyle	279 (98.2)	5 (1.8)
Able to search for information or advice on how to become pregnant in a healthy way	259 (91.2)	25 (8.8)
Able to eat healthily	253 (89.1)	31 (10.9)
Able to avoid testicular hyperthermia (exposure to abnormally high temperatures to the testicles (<i>e.g.</i> , prolonged sitting, hot baths, saunas, tight underwear, and putting a laptop on your thighs))	237 (83.5)	47 (16.5)
Able to attend a preconception consult with a healthcare provider	200 (70.4)	84 (29.6)
Able to support your partner to perform a preconception lifestyle	273 (96.1)	11 (3.9)
Able to reduce drinking alcohol (n = 20)	6 (30)	14 (70)
Able to stop smoking (n = 97)	48 (49.5)	49 (50.5)
Able to reduce weight (n = 230)	140 (60.9)	90 (39.1)
Able to discuss medications or herbs use with a healthcare provider (n = 104)	78 (75.0)	26 (25.0)

strong inclination to receive preconception health information. Furthermore, Shawe *et al.* [3] found that married men in England who received or sought information regarding preconception health displayed positive preconception health behaviours such as smoking cessation, reduced alcohol consumption, and healthy eating. These men discontinued these behaviours before conception because they were informed that their preconception behaviour affected their partners' health behaviour [3, 22, 23]. Dollar *et al.* [24] showed that both men and women were unlikely to stop smoking or reduce alcohol consumption if their partners still engaged in similar behaviours. Therefore, couples who planned their pregnancy were more likely to make behavioural changes to these substance dependences [3].

Pregnancy planning positively influences both partners' intention to change their preconception lifestyle, but the intention to adopt good behaviour is not without challenges. Our study demonstrated that, while married men showed a

positive inclination to adopt a healthy lifestyle, fewer than 50% admitted they would not stop smoking or quit alcohol during the preconception period. Similarly, Högberg *et al.* [22] (in Sweden) and Goossens *et al.* [17] (in Belgium) also reported that only 45% and 58% of all partners decreased their substance dependency (alcohol consumption and smoking) once their partner became pregnant, respectively. These findings are unsurprising because smoking and chronic alcohol use are addictive over time, and overcoming addiction requires self-efficacy and dedicated medical attention. In Malaysia, the success of programs targeting substance dependence is known to be suboptimal. Fewer than half of Malaysian smokers (48.9%) have attempted to quit smoking, and less than 10% of current smokers have visited an HCP in the past 12 months [25], with only 30% of smokers managing to quit smoking after attending a quit-smoking centre [26]. One study showed that more males consumed alcohol (15.8%) than females (6.2%) [25]. While the proportion of drinkers with alcohol dependence was very

TABLE 5. Factors associated with the intention to make preconception lifestyle changes in a univariate simple logistic regression analysis.

Variable	Intention, median (IQR)		Crude OR	95% CI		p-value
	Low	High		LL	UL	
Age ^a	32.00 (8.00)	32.00 (7.00)	0.98	0.94	1.03	0.500
Number of children ^b	1.00 (1.00)	1.00 (1.00)	1.00	0.82	1.21	0.990
Self-efficacy score ^c	6.00 (2.00)	7.00 (2.00)	1.84	1.49	2.27	<0.001**
Attitude score ^d	17.00 (4.00)	18.00 (3.00)	1.09	1.00	1.19	0.050*
Smoker ^e			0.64	0.38	1.05	0.080*
Alcohol drinker ^e			1.16	0.46	2.93	0.760
BMI \geq 23 ^e			1.40	0.77	2.53	0.270
Social influence ^e						
Close social environment ^f	16.00 (2.00)	18.00 (4.00)	1.20	1.09	1.33	<0.001**
Peer support ^g	4.00 (2.00)	4.00 (1.00)	1.82	1.42	2.34	<0.001**
HCP ^g	4.00 (1.00)	5.00 (1.00)	1.32	0.94	1.85	0.110*
Social influence of media ^g	2.00 (1.00)	2.00 (2.00)	1.19	0.96	1.47	0.110*
Importance of other's opinions ^h	18.00 (5.00)	22.00 (3.00)	1.32	1.22	1.44	<0.001**

^aage range: 25–45 years; ^brange of number of children: 0–6; ^crange of score: 0–10; ^drange of score: 4–25; ^ecategorical variable; ^frange of score: 4–20; ^grange of score: 1–5; ^hrange of score: 5–25; * $p < 0.25$; **statistically significant; OR: odds ratio; LL: lower limit; UL: upper limit; IQR: interquartile range; CI: confidence interval; BMI: body mass index; HCP: healthcare provider.

TABLE 6. Factors associated with the intention to make preconception lifestyle changes in a multivariate logistic regression analysis.

Variables	β	SE	Adjusted OR	95% CI		p-value
				LL	UL	
Preconception counselling						
Yes	2.59	0.79	13.33	2.82	63.02	0.001*
No			1			
Self-efficacy score ^a	0.57	0.12	1.76	1.39	2.24	<0.001*
Social influence: peer support ^b	0.33	0.15	1.39	1.03	1.87	0.030*
Social influence: importance of other's opinions ^c	0.21	0.05	1.23	1.12	1.35	<0.001*

^arange of score: 0–10; ^brange of score: 0–5; ^crange of score: 5–25; *statistically significant; SE: standard error; OR: odds ratio; LL: lower limit; UL: upper limit; CI: confidence interval. The model has an adjusted R^2 of 32.9 and a p-value of < 0.001. There was no multicollinearity as the variance inflation factor was <10. Variables were selected in the multiple linear regressions using the backward method to remove highly correlated variables.

low (0.9%), up to 17% consume alcohol in amounts that could lead to adverse health effects [25].

Intentions to adopt good behaviour do not necessarily translate into action, especially when self-efficacy is involved. Self-efficacy plays a significant role in realising behavioural intentions. However, it is also apparent that under the influence of smoking and alcohol, some men do not have sufficient confidence or self-efficacy to overcome these unhealthy behaviours, even for the sake of pregnancy. Men with high self-efficacy expressed greater intent to reduce alcohol consumption and quit smoking [17, 27]. They also experienced longer periods of alcohol abstinence, longer time-to-relapse, and longer time-to-first drink after alcohol treatment [27]. However, even though respondents in other studies reported that showing solidarity to

support their partner was their most common motive to reduce drinking, fewer than 50% of our respondents who were actively smoking and consuming alcohol believed that they were capable of stopping these addictive behaviours. In conclusion, our study is consistent with social psychology frameworks and emphasises similar findings from other studies; higher self-efficacy predicts actual behaviour [28].

One strategy to promote self-efficacy among these men is peer support. Good peer support can empower men to change their unhealthy habits, and our study found it to positively predict intention for lifestyle behaviour change. Lowenstein *et al.* [29] found that among 4182 men in Thailand, 34% of men who successfully abstained from smoking had at least one friend within their immediate social network, and their 12-

month abstinence rate was higher (51.5%) than those without a friend who had quit smoking. A randomised controlled trial emphasised the effectiveness of peer support intervention programs; participants in the peer-based brief interventions program exhibited a significant decrease in the mean number of binge drinking episodes from an average of 5.2 per month to only 2.6 per month at the 12-month follow-up [30]. Men's self-efficacy in making changes is significantly influenced by peer support, whereas women's self-efficacy is not strongly affected by the presence of supportive peers [31, 32]. Therefore, incorporating peer support mechanisms into substance dependence intervention could enhance the effectiveness of such programs.

Unfortunately, health-seeking behaviours are lower among men than women in Malaysia [13] partly because they are not the target population of reproductive-based preconception care services [1]. Indeed, it is paramount for HCPs to adopt more assertive and persuasive approaches to engage women's partners in preconception care by promoting a healthy lifestyle and encouraging medical health screenings, including offering them available substance-dependence services if needed [2, 5]. When HCPs promote quitting smoking and reducing alcohol use, it is crucial to acknowledge that overcoming substance dependence is not an easy journey. These men must focus on personal values and be empowered to adopt a healthier lifestyle.

5. Conclusions

More than half of married men intending to conceive at a public health clinic in Kuala Lumpur intend to implement preconception lifestyle changes. Despite their intentions for preconception lifestyle changes, they demonstrated low intention towards changing substance dependence behaviours preconception. Factors influencing the intention were having attended preconception counselling, having higher self-efficacy, and social influence. Therefore, preconception lifestyle interventions should focus on fostering self-efficacy among men with substance dependence to facilitate behavioural changes using support from their social environment.

AVAILABILITY OF DATA AND MATERIALS

The data presented in this study are available on reasonable request from the corresponding author.

AUTHOR CONTRIBUTIONS

IZI, NKD and SSAM—designed the research study, wrote the manuscript. SSAM—performed the research. IZI and SSAM—analyzed the data. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This study was approved by the ethics approval from the Medical Research Ethics Committee (MREC), Ministry of

Health, Malaysia on 28 October 2022 (NMRR ID-22-01502-BXV (IIR)). All the respondents signed an informed consent form prior to answering the questionnaire.

ACKNOWLEDGMENT

The authors would like to express their gratitudes to all respondents of this study, the Ministry of Health for their support and University of Putra Malaysia Research Management Centre for the funding. The authors would also like to thank the Director General of Health Malaysia for the permission to publish this paper.

FUNDING

This research received funding from the University of Putra Malaysia (Geran Putra-IPS 9726500). The funder had no role in the study design, data collection and analysis, decision to publish and preparation of the manuscript.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFERENCES

- [1] Division of Family Health Development, Ministry of Health Malaysia. Perinatal care manual 4th edition. 2013. Available at: https://hq.moh.gov.my/bpkk/images/PERINATAL_CARE_MANUAL_4th_Edition_2020_11Mei2023.pdf (Accessed: 05 June 2024).
- [2] Johnson K, Posner SF, Biermann J, Cordero JF, Atrash HK, Parker CS, *et al.* Recommendations to improve preconception health and health care—United States. A report of the CDC/ATSDR preconception care work group and the select panel on preconception care. *Morbidity and Mortality Weekly Report.* 2006; 55: 1–23.
- [3] Shawe J, Patel D, Joy M, Howden B, Barrett G, Stephenson J. Preparation for fatherhood: a survey of men's preconception health knowledge and behaviour in England. *PLOS ONE.* 2019; 14: e0213897.
- [4] Rabiei Z, Shariati M, Moghabarian N, Tahmasebi R, Ghiasi A, Motaghi Z. Exploring the reproductive health needs of men in the preconception period: a qualitative study. *Journal of Education and Health Promotion.* 2022; 11: 208.
- [5] Abed AM. Unlocking the path to healthier families: the untapped potential of men's preconception health. *Journal of Prevention.* 2024; 45: 1–8.
- [6] Finelli R, Mottola R, Agarwal A. Impact of alcohol consumption on male fertility potential: a narrative review. *International Journal of Environmental Research and Public Health.* 2021; 19: 328.
- [7] Montagnoli C, Ruggeri S, Cinelli G, Tozzi AE, Bovo C, Bortolus R, *et al.* Anything new about paternal contribution to reproductive outcomes? A review of the evidence. *The World Journal of Men's Health.* 2021; 39: 626–644.
- [8] Kwawukume SAK, Laar AS, Abdulai T. Assessment of men involvement in family planning services use and associated factors in rural Ghana. *Archives of Public Health.* 2022; 80: 63.
- [9] Lau BT, Ng SY, Che-Pa MF, Maarof MF, Subramanian DK, Sallehuddin ZE, *et al.* Contraceptive intention among postpartum women and willingness for pharmacist counselling in Negeri Sembilan, Malaysia: a cross-sectional study. *Malaysian Journal of Pharmacy.* 2022; 8: 19–25.
- [10] Roudsari RL, Sharifi F, Gourdarzi F. Barriers to the participation of men in reproductive health care: a systematic review and meta-synthesis. *BMC Public Health.* 2023; 23: 818.
- [11] Kotelchuck M. The impact of father's health on reproductive and infant

- health and development. In Grau MG, MLS, Bowles HR (eds.) *Engaged fatherhood for men, families and gender equality* (pp. 31–61). 1st edn. Springer International Publishing: Cham. 2022.
- [12] Pearson L, Holton S, McLachlan R, Hammarberg K. Australian men's fertility information seeking attitudes and behaviour: a qualitative investigation. *Sexual and Reproductive Healthcare*. 2021; 29: 100621.
- [13] Lim MT, Lim YMF, Tong SF, Sivasampu S. Age, sex and primary care setting differences in patients' perception of community healthcare seeking behaviour towards health services. *PLOS ONE*. 2019; 14: e0224260.
- [14] Bodin M, Käll L, Tydén T, Stern J, Drevin J, Larsson M. Exploring men's pregnancy-planning behaviour and fertility knowledge: a survey among fathers in Sweden. *Upsala Journal of Medical Sciences*. 2017; 122: 127–135.
- [15] Maas VYF, Poels M, Stam AL, Liefink N, Franx A, Koster MPH. Exploring male perceptions regarding the need to engage in preconception care—a mixed-method study amongst Dutch (prospective) fathers. *The European Journal of Contraception & Reproductive Health Care*. 2022; 27: 322–329.
- [16] Ojifinni OO, Ibisomi L. Perception of men's need for preconception care—a qualitative exploration among health care providers and community members. *Frontiers in Public Health*. 2022; 10: 958618.
- [17] Goossens J, Van Hecke A, Beeckman D, Verhaeghe S. The intention to make preconception lifestyle changes in men: associated socio-demographic and psychosocial factors. *Midwifery*. 2019; 73: 8–16.
- [18] Bujang MA, Hon YK, Lee K, Yee K. A step-by-step guide to questionnaire validation research. 1st edn. Institute for Clinical Research: Malaysia. 2022.
- [19] Vivian WSY, Norhidaya MU, Siti Hamidah H. Measuring the internal consistency and reliability of the hierarchy of controls in preventing infectious disease on construction sites: the Kuder-Richardson (KR-20) and Cronbach's alpha. *Journal of Advanced Research in Applied Sciences and Engineering Technology*. 2023; 33: 392–405.
- [20] Ministry of Health Malaysia. Clinical practice guidelines management of obesity. 2nd edn. 2023. Available at: [https://www.moh.gov.my/moh/resources/Penerbitan/CPG/Endocrine/CPG_Management_of_Obesity_\(Second_Edition\)_2023.pdf](https://www.moh.gov.my/moh/resources/Penerbitan/CPG/Endocrine/CPG_Management_of_Obesity_(Second_Edition)_2023.pdf) (Accessed: 05 June 2024).
- [21] Al-Akour NA, Sou'Ub R, Mohammad K, Zayed F. Awareness of preconception care among women and men: a study from Jordan. *Journal of Obstetrics and Gynaecology*. 2015; 35: 246–250.
- [22] Högberg H, Skagerström J, Spak F, Nilsen P, Larsson M. Alcohol consumption among partners of pregnant women in Sweden: a cross sectional study. *BMC Public Health*. 2016; 16: 694.
- [23] Voutilainen T, Rysä J, Keski-Nisula L, Kärkkäinen O. Self-reported alcohol consumption of pregnant women and their partners correlates both before and during pregnancy: a cohort study with 21,472 singleton pregnancies. *Alcoholism: Clinical and Experimental Research*. 2022; 46: 797–808.
- [24] Dollar KM, Homish GG, Kozlowski LT, Leonard KE. Spousal and alcohol-related predictors of smoking cessation: a longitudinal study in a community sample of married couples. *American Journal of Public Health*. 2009; 99: 231–233.
- [25] Institute for Public Health, National Institutes of Health, Ministry of Health Malaysia. National Health and Morbidity Survey 2019: technical report-volume 1, ncds-non communicable diseases: risk factors and other health problems. Ministry of Health Malaysia. 2020; 1: 81–83.
- [26] Zamzuri MAIA, Kamarudin SAA, Ariffin AH, Ibrahim AA, Othman MH, Johari A, *et al.* Rate of smoking cessation and factors associated with successful quit smoking in Seremban District of Malaysia. *Clinical Epidemiology and Global Health*. 2021; 12: 100862.
- [27] Greenfield SF, Hufford MR, Vagge LM, Muenz LR, Costello ME, Weiss RD. The relationship of self-efficacy expectancies to relapse among alcohol dependent men and women: a prospective study. *Journal of Studies on Alcohol*. 2000; 61: 345–351.
- [28] De Vries H, Dijkstra M, Kuhlman P. Self-efficacy: the third factor besides attitude and subjective norm as a predictor of behavioural intentions. *Health Education Research*. 1988; 3: 273–282.
- [29] Lowenstein C, Dow WH, White JS. Peer effects in smoking cessation: an instrumental variables analysis of a worksite intervention in Thailand. *SSM—Population Health*. 2020; 12: 100659.
- [30] Blow FC, Walton M, Ilgen M, Ignacio RV, Walters H, Massey L, *et al.* Peer- and web-based interventions for risky drinking among US National Guard members: mission Strong randomized controlled trial. *Addiction*. 2023; 118: 1246–1257.
- [31] Kelly JF, Hoepfner BB. Does alcoholics anonymous work differently for men and women? A moderated multiple-mediation analysis in a large clinical sample. *Drug and Alcohol Dependence*. 2013; 130: 186–193.
- [32] Al-Ziadat MA. Do social support and self-efficacy play a significant role in substance use relapse? *Health Psychology Research*. 2024; 12: 94576.

How to cite this article: Siti Solehah Ahmad Mazlan, Irmī Zarina Ismail, Navin Kumar Devaraj. Intention to make preconception lifestyle changes among married men in an urban primary care clinic and its association with self-efficacy. *Journal of Men's Health*. 2024; 20(11): 112-119. doi: 10.22514/jomh.2024.191.