SMART YOUTH FOR DIABETES PREVENTION: TRANSFORMATION OF ADOLESCENTS' HEALTH CADRE KNOWLEDGE THROUGH SCHOOL-BASED EDUCATIONAL MEDIA AT SMA PASUNDAN 3 BANDUNG CITY

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ABSTRACT

The prevalence of Diabetes Mellitus (DM) among adolescents shows an increasing trend, yet adequate health literacy within school settings remains insufficient. This community service program aimed to improve the knowledge of Adolescent Health Cadres (KKR) regarding DM prevention through the Smart Youth for Diabetes Prevention initiative. The program applied a community empowerment approach incorporating health education, cadre training, dissemination of booklets and video media, and peer educator practice mentoring, involving 25 students from SMA Pasundan Bandung. Evaluation results demonstrated significant cognitive transformation, with all participants (100%) achieving the "Good" knowledge category and a mean score increase from 72.2 to 92.8. The program recommends institutionalizing activities within the School Health Unit (UKS) and strengthening cross-sector collaboration among schools, primary health centers, and academics to sustain early detection of Noncommunicable disease risk factors among adolescents.

Keywords: Adolescent Health Cadre, Diabetes Mellitus, Educational Media, Health Literacy, Peer Educator.

1. INTRODUCTION

Diabetes mellitus (DM) is a Noncommunicable disease that has seen the highest increase in prevalence in the last 10 years, so it is important to prevent and control it immediately. (He et al., 2024). Globally, the burden of DM is increasing rapidly: incidence is up 71%, and DALYs are up 38% between 1990 and 2021, with type 2 DM (T2DM) dominating. Diabetes, if left unchecked, can lead to blindness, heart attack, stroke, kidney failure, and leg amputation. In Indonesia and around the world, the prevalence of diabetes continues to increase every year. The World Health Organization (WHO) said that the number of people with DM worldwide reached 422 million in 2020. This number is expected to increase by about 45 percent, or by 629 million, by 2045. (Federation, 2023) The WHO also estimates that DM will cause 1.6 million deaths. Almost 80% of these occur in low- and middle-income countries. The prevalence of DM in West Java reached 1.74% (an estimated 570,611 people with diabetes), ranking it 10th among Indonesia's 33 provinces. (Kemenkes BPKP, 2024).

Diabetes mellitus, both type 1 and type 2, is an increasingly common chronic condition in adolescents. This condition requires special attention because it can affect adolescents' quality of life and their physical and emotional development. Diabetes mellitus is one of the most common chronic diseases in children and adolescents. The incidence of DM continues to increase despite developments in diagnosis and treatment. (Koutny et al., 2024) In Russia, for example, 48,031 children and adolescents are registered with DM. Meanwhile, the prevalence of type diabetes in adolescents is also increasing, mainly due to increased obesity and poor eating habits (Purwaningsih et al., 2024). Diabetes mellitus (DM) is the Noncommunicable disease (NCD) with the highest prevalence in the last 10 years, so it is important to prevent and control this disease immediately. This diabetic disease, if left unchecked, can lead to blindness, heart attack, stroke, kidney failure, and amputation of the leg. In Indonesia and around the world, the prevalence of diabetes continues to increase every year. (Triliwijaya, 2019). This number is expected to increase by about 45 percent, equivalent to 629 million by 2045.

According to data from the Bandung City Health Office, as many as 9 people under the age of 15 were recorded as having type 1 DM in 2021. Meanwhile, in 2022, there were 9 cases of type 1 DM under the age of 15 years and 44 people with type 2 DM (Venita Syavera & Muhamad Syazali, 2024). Diabetes usually occurs as a result of an unbalanced diet and lifestyle, as well as a lack of knowledge about diabetes. DM occurs not only in adulthood but also in adolescence, so understanding early detection and prevention of the disease remains limited. (Silva et al., 2025) Moreover, it needs to be accompanied by appropriate sports and activities. (Damawan, 2018) Regularly engage in positive physical activity to burn off incoming calories, eat a healthy diet, limit sugar consumption to a maximum of 4 tablespoons per day across all foods and drinks, and read diligently. (Kemenkes, 2023) The composition or content of packaged foods, as well as adequate rest, knowledge, and understanding of DM, can influence actions or behavior formation in preventing the occurrence of the disease.

The change in knowledge and understanding resulting from health education, coupled with positive awareness, can serve as a preventive measure when implemented. These changes can be made through education, print media, and applications. One of the media that can be provided is leaflets and booklets about DM. Research indicates that leaflet media can increase respondents' knowledge.(Purnomo & Dewi, 2024). Media leaflets can provide information about DM prevention, and media booklets can further improve understanding because they are small, easy to carry, and can be learned independently. The socialization of DM education also involves adolescent health cadres. Because the invitation to education is most readily heard when the appeal is delivered directly by children of their age. (Purwaningsih et al., 2024)

Puskesmas has duties in implementing the PKPR program, including routinely checking the health of adolescents in general in the community, especially at school, by picking up the ball, because DM is different from infectious diseases, whose symptoms are visible. (Kepmenkes Kebijakan Dasar Puskesmas, n.d.) These DMs are rarely detected, so the key is to identify cases and immediately implement preventive measures through screening. (Direktorat Keperawatan dan Keteknisan Medik, 2006)

The results of initial interviews with 3 students at Pasundan High School showed that they did not know in detail about DM, from its definition and causes to its signs and symptoms, and how to prevent it. At the school, they have never received information on DM from health workers and have not been specifically trained by health workers on Noncommunicable Diseases (NCDs), one of which is DM. (Adiyati mardiyah, 2025) The Partners' priority problem is the lack of information for adolescent health cadres in schools about DM and its prevention. (Africia et al., 2023)Adolescent cadres feel they lack a clear understanding of DM and its prevention, and hope for information on DM prevention.

This service activity aims to increase the knowledge of Adolescent Health Cadres (KKR) about the prevention of Diabetes Mellitus through the implementation of *the Smart Youth for Diabetes Prevention program, using educational media such as booklets and videos,* at SMA Pasundan Bandung City.

2. PROBLEMS AND QUESTION FORMULATION

The trend of increasing the burden of type 2 Diabetes Mellitus (DM) in adolescents and young adults is increasingly worrying, along with the spread of sedentary behavior, high consumption patterns of sugar and sweetened beverages, fast food consumption habits, and smoking behavior as risk factors that interact with each other (Sudarta et al., 2025). Data from the City of Bandung show an increase in cases of type 1 and type 2 DM among those under 19 years old. This condition needs to be accompanied by strengthening adequate health literacy in educational institutions. The results *of the initial needs assessment indicate that most students lack* a comprehensive understanding of the signs, symptoms, and preventive measures of DM. On the other hand, the role of Adolescent Health Cadres (KKR) as *peer educators* in the school health ecosystem has also not been effectively optimized as the spearhead of community-based health promotion. The formulation of questions in this activity is:

1) How to increase the knowledge of adolescent health cadres about the prevention of diabetes mellitus through the use of school-based educational media in the form of booklets and leaflets?
2) What is the description of the implementation of the role of Adolescent Health Cadres as peer educators after participating in the empowerment program??

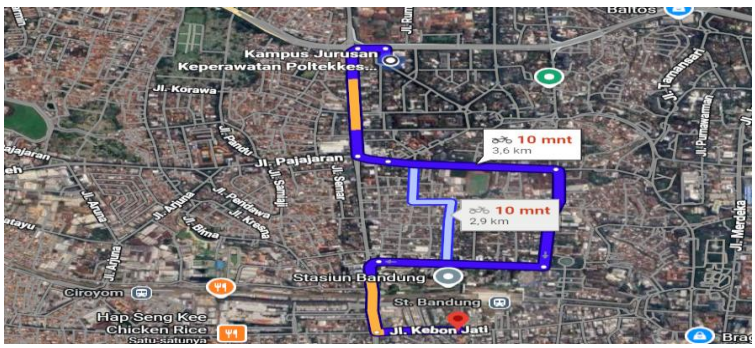

Figure 1. Map Activity location

3. LITERATURE REVIEW

Adolescents are a transitional age group that is vulnerable to lifestyle changes, and diabetes at a young age continues to increase globally. This condition is important to note because diabetes in adolescents can have an impact on quality of life, physical development, and mental health, and tends to develop faster and more severely at a young age. The increased prevalence of DM in adolescents today is widely attributed to obesity, poor diet, including the consumption of fast food and foods high in sugar or fat, and a sedentary lifestyle. (Titmuss et al., 2024)

Adolescent Health Cadres are students trained to serve as an extension of health workers through the Youth Care Health Service (PKPR) program. As *peer educators*, cadres play a strategic role because educational invitations are more likely to be received if delivered directly by children their age. The KKR is tasked with conveying information obtained from the training to the school environment to reduce the number of DM among adolescents. (Pusat Pelatihan SDM Kesehatan, 2018)

A person's knowledge and understanding of DM form the foundation for developing preventive behaviors, as health literacy encompasses the ability to access, understand, and use health information to prevent disease. This knowledge transformation can be achieved by providing education via appropriate media, such as booklets and leaflets. Diabetes education guidelines for children and adolescents also recommend quality-assured materials, including books, booklets, leaflets, and other printed resources that are age-appropriate and easy to understand. (Lindholm Olinder et al., 2022) Booklet media, in particular, is considered effective because printed materials can be learned independently by teenagers at their own time and according to their own needs, without always requiring face-to-face interaction. Studies in adolescents show that age-appropriate booklets can improve literacy and be well received. (Bahrami-Samani et al., 2024)

The program uses a community empowerment approach focused on solving partners' problems through practical scientific methods. The program plan is prepared systematically, including the preparation stage (problem identification), the implementation stage, and the cadre assistance stage for audiovisual and print media (booklet) to strengthen the knowledge transformation process and produce measurable, sustainable outputs. The significance of this program lies in efforts to mitigate the risk of diabetes mellitus complications through strengthening health literacy. The real contribution of this activity lies in creating partnerships among academics, schools, and health centers to support government programs for NCD prevention. Academically, this program shows the effectiveness of transforming cadre knowledge through standardized and legalized educational media.

Peer-led intervention *approaches* in schools have been shown to significantly improve adolescent adherence to healthy living behaviors and preventive diet management in developing countries. Adolescents show higher levels of information acceptance and less resistance when health messages are communicated horizontally by their peers, which is validated as the main capital for the success of health literacy programs in educational institutions(S. Zheng et al., 2025)

In addition to print media, the integration of audiovisual tools, such as educational videos about diabetes mellitus, has a significant impact on

stimulating the cognitive domain of adolescents in Indonesia. Dynamic visualization of the material helps to unravel the complexity of clinical information related to pathophysiology and diabetes risk factors into material that is applicable, independent, and interesting to the psychological characteristics of urban adolescents(Puspita et al., 2025)

Although the effectiveness of print media, such as booklets, has been extensively researched, the integration of such media with the active role of adolescent health cadres (KKR) as peer educators within the urban school ecosystem still requires broader empirical evidence. Strengthening health literacy is not only oriented toward individual knowledge transfer but also toward the formation of agents of change (Nutbeam & Lloyd, 2021), who can encourage early detection and behavioral interventions within the peer environment. Therefore, this review underlies the importance of a structured empowerment program to optimize the functional capacity of the KKR. Based on the research gap, the purpose of this community service activity is to increase KKR's knowledge and functional capacity in preventing type 2 diabetes mellitus through the implementation of the Smart Youth for Diabetes Prevention program, using a combination of booklet and video media, at SMA Pasundan 3, Bandung City. Specifically, the questions to be answered through this activity include: (1) how to increase knowledge about the effectiveness of the use of school booklets and video media? Moreover, (2) how is the readiness and implementation of KKR's role as *a peer educator* after participating in the empowerment program?

4. METHODS

The method used: This community service activity employs the Community Empowerment approach, combining several educational methods. The implementation of this community service program is systematically designed in three main stages as follows:

a. Preparation Stage (Pre-Implementation)
   This stage begins with coordination and licensing activities with partners, namely Pasundan High School, Bandung City, and local health centers, which serve as primary health facilities. At this stage, the preparation and validation of evaluation instruments, in the form of pre-test and post-test questionnaires, were carried out, as well as the preparation of all educational media to be used, including booklets and videos.
b. Implementation Stage (Intervention)
   The intervention stage begins with a pre-test, in which participants (25 students serving as Adolescent Health Cadres) complete a questionnaire to assess their knowledge level before the intervention. Furthermore, a presentation on diabetes mellitus—definitions, signs and symptoms, risk factors, and prevention strategies—was delivered by a team of lecturers using an LCD projector. The activity continued with training on the use of media, where cadres were trained in practical exercises using booklets as a means of independent education and in effective information-delivery techniques for peers. The intervention stage ended with a discussion, question, and answer session
c. Evaluation and Follow-up Stage
   The final stage begins with a final measurement (post-test), where participants again fill out a questionnaire to measure the degree of

knowledge that occurs after the intervention. The overview of the implementation of the role of KKR as peer educators was evaluated descriptively through direct observation by the service team during the simulation session, paying attention to the aspects of smooth delivery of information, accuracy of material, and response of peer audiences as indicators of cadres' readiness in carrying out their educational roles independently.

5. RESULTS AND DISCUSSION

a. Results

1) Increasing KKR's Knowledge on DM Prevention

Community service activities were conducted at Pasundan High School in Bandung City, involving 25 students selected as Adolescent Health Cadres (KKR). The characteristics of the participants were dominated by the age group of 15–18 years, with a background of having never received formal training related to the prevention of Noncommunicable diseases. The results of the knowledge evaluation showed a significant quantitative transformation between *pre-test* and post-intervention measurements, as presented in Table 1 below:

Table 1. Comparison of Adolescent Health Cadre Knowledge Score (n=25)

Parameter Statistik	Pre-Test	Post-Test	Peningkatan (%)
Skor Rata-rata	72,2	92,8	28,53%
Skor Minimum	55	80	45,45%
Skor Maksimum	95	100	5,26%
Standar Deviasi	9,02	6,93	-

Based on Table 1, the average value of participants' knowledge increased from 72.20 on the pre-test to 92.80 on the post-test, representing a 28.53% increase. The increase in the most substantial minimum score, from 55.00 to 80.00 (45.45%), indicated that even participants with the most limited initial understanding managed to reach the "Good" competency threshold after the intervention. The decrease in the standard deviation from 9.02 to 6.93 indicates that the distribution of knowledge among cadres has become more homogeneous and equitable, an important indicator of the consistency of peer education quality in the field. Adolescent health cadres are directed to serve as peer educators who can support DM prevention education, monitor risk factors, and recognize early signs that warrant further screening. (Lindholm Olinder et al., 2022)

Table 2. Distribution of Adolescent Health Cadre Knowledge Category

Kategori Pengetahuan	Nilai	Frekuensi Pre-Test	Frekuensi Post-Test
Baik	> 76	7 Orang (28%)	25 Orang (100%)
Cukup	56 - 76	17 Orang (68%)	0 Orang (0%)
Kurang	< 56	1 Orang (4%)	0 Orang (0%)

Table 2 shows the shift in knowledge levels. Before the intervention, only 7 cadres (28%) were in the "Good" knowledge category; most participants (17, 68%) were in the "Sufficient" category, and 1 (4%) was in the "Less" category. Post-intervention, all participants (100%) achieved the "Good" knowledge category, with the "Good" and "Poor" categories eliminated. This achievement confirms that the Smart Youth for Diabetes Prevention program, through booklet media and presentations delivered via LCD projectors and videos, has proven effective in comprehensively and measurably transforming the cognitive capacity of all adolescent health cadres.

2) Overview of the Implementation of KKR's Role as Peer Educators

The observation results showed that all cadres were able to convey information on DM prevention to their peers smoothly and systematically under the supervision of the service team. Cadres demonstrate comprehensive mastery of the material, including the substance of Formula 3J, simple screening procedures, and the recognition of DM danger signs. In addition, cadres show a confident, open, and responsive attitude in discussing adolescent health issues in the school environment.

The success of all cadres in achieving the "Good" category of knowledge becomes a strong intellectual foundation for their readiness to carry out the function of early detection through simple health screenings, such as measurements of body mass index (BMI) and waist circumference in the school environment. This achievement indicates that the implemented empowerment program has successfully developed the functional capacity of cadres as school-community-based health promotion agents within the framework of Youth Care Health Services (PKPR).

Figure 1. Implementation of Activities for Adolescent Health Cadres

b. Discussion

The results of the activity showed a significant increase in knowledge among adolescent cadres, showing that the selection of interactive print-based dissemination media, such as booklets, was in accordance with the characteristics and needs of this age group. Knowledge is an important predisposing factor in the formation of healthy behaviors. (Soekidjo Notoatmojo, 2010). In the context of community nursing, increasing cadre knowledge is the foundation for building a school environment that is more responsive to the risk of Noncommunicable Diseases (NCDs). (Anshari et al., 2023) Diabetes education for adolescents requires practical yet comprehensive media. This activity shows that knowledge can be improved through structured education supported by validated evaluation instruments and learning media aligned with adolescents' characteristics. Validated questionnaires provide an objective basis for assessing changes in knowledge, while the combination of booklets and videos facilitates the delivery of more systematic, easy-to-understand material that supports independent learning. (Mandiri et al., 2024)

Psychologically, adolescents are in a developmental stage that tends to be more receptive to information from *peer groups*. Therefore, the transformation of knowledge among cadres is the primary capital for breaking the risk chain of type 2 DM stemming from sedentary lifestyles and unhealthy diets in the school environment. The increase in knowledge among adolescent cadres in this program is consistent with the theory of health behavior, which posits that health education is an important stimulus for changing the cognitive domain, thereby underlying behavioral change (Notoatmodjo, 2010).

Interventions using *booklet* media have been proven to have a deeper impact than other conventional media because of their portability and the ability to be studied independently. This is supported by research by Fitriani and K (2022), which shows that educational media has a significant influence on diabetes prevention knowledge among adolescents, with a p-value < 0.05. Furthermore, the involvement of adolescents as cadres aligns with the Bandung City Health Office's "picking up the ball" strategy to detect early cases of NCDs, which are often asymptomatic in young people (Dinas Kesehatan Provinsi Jawa Barat, 2023). The integration of health education and cadre empowerment is a strategic solution to address the challenges of the epidemiological transition, in which DM cases are shifting to younger age groups due to exposure to high-glucose ready-to-eat foods in school settings. (J. Zheng, 2023)

In addition, the success of this program is also supported by the role of cadres as *peer educators*. Adolescents generally have strong social closeness with their peers, so health messages conveyed through peer communication tend to be more readily received and perceived as less intimidating than those delivered by formal health workers. (Africia et al., 2023). With the achievement of increasing knowledge to the good category, KKR at SMA Pasundan 3, Bandung City, has the functional capacity to serve as an agent for healthy behavior change among its peers. Community service activities involving 20 Posyandu cadres in Cibeureum Village have proven to be effective in increasing their capacity related to

the prevention of diabetes complications through gymnastics training (Yuniar Syanti Rahayu et al., 2025)

These changes can be made by providing education through print media or application media. One of the media that can be provided is the booklet. Research by JW Muchiri indicates that leaflet and booklet media can increase respondents' knowledge. The results of other studies show that educational interventions using audiovisual media, booklets, and leaflets increase the knowledge and attitudes of *overweight adolescents*. Media leaflets can provide information on DM prevention, and media booklets can increase understanding because they are small and easy to carry, allowing for independent study. (Soekidjo Notoatmojo, 2010)

The implementation of this program also strengthens synergy between educational institutions and health facilities through the Youth Care Health Services (PKPR) pillar. This collaboration is important for ensuring the sustainability of early screening for DM risk in schools. This preventive effort is becoming increasingly relevant, given that the prevalence of DM in West Java continues to rise, making adolescent intervention a strategic long-term health investment.

The implementation of this community service program adopts an empowerment-based approach by strengthening the capacity of Adolescent Health Cadres (KKR) within the Pasundan High School environment in Bandung City. The implementation of the program is designed in a systematic and structured manner, including the identification stage of target partners, the dissemination of the substance of diabetes mellitus (DM) prevention materials through health media instruments in the form of booklets and videos, as well as intensive assistance in the development of cadre competencies as *peer educators*. (Pasambo et al., 2026) to the focus of KKR empowerment activities at SMA Pasundan 3, Bandung City. In this activity, KKR is equipped not only with theoretical knowledge but also with the functional capacity to monitor cardiometabolic indicators, such as BMI and waist circumference, in the school environment. Thus, optimizing KKR's role as a peer educator by providing booklets and video media is a highly relevant strategic step to break the chain of prediabetes progression into type 2 Diabetes Mellitus independently and sustainably at the school community level.

The effectiveness of the intervention implemented is reflected substantively in the achievement of cognitive capacity transformation of participants, where all cadres (100%) managed to achieve the category of good knowledge after the intervention. These achievements indicate that the implemented empowerment program strengthens the health support infrastructure in the school environment, particularly in the early detection of Noncommunicable disease (NCD) risk factors, as mandated by the Youth Care Health Services (PKPR) framework.

Furthermore, this program makes a measurable contribution to improving health literacy among urban adolescents in Bandung. This is achieved through cross-sector collaborations among stakeholders from academia, formal educational institutions, and primary health service facilities. Collaborative integration among stakeholders is a strategic foundation for ensuring the sustainability of preventive interventions and for responding to the increasingly worrying trend in the prevalence of DM among young age groups in the context of urban public health.

Figure 2. Educational atmosphere using Booklets and Videos

Figure 3. Group Photo after the completion of the activity

6. CONCLUSION

The Smart Youth for Diabetes Prevention *program* has proven effective in increasing the knowledge of Adolescent Health Cadres (KKR) about diabetes mellitus prevention at SMA Pasundan Bandung City, as evidenced by all participants achieving the "Good" post-intervention knowledge category. Strengthening the role of cadres as *peer educators* through booklet-based educational media has proven to be a valid and effective intervention strategy for building awareness of early detection of risk factors for Noncommunicable diseases (NCDs) in educational institutions.

The sustainability of the program is recommended through three strategic paths: first, institutionalization of the program into the agenda of the School Health Unit (UKS) on an ongoing basis; second, strengthening cadre development by Puskesmas through the pillar of Youth Care Health Services (PKPR); and third, expanding the scope of interventions by integrating *the pentahelix* approach involving parents, educational institutions, primary health facilities, academics, and business actors around the school environment to create a comprehensive and sustainable preventive ecosystem.

As a recommendation for the future, this empowerment program needs to be formally integrated into the School Health Unit (UKS) policy, with periodic coaching by the Puskesmas through the Youth Care Health Services

(PKPR) pillar, to ensure the sustainability of interventions. In addition, for further research or community service, it is recommended to expand the intervention locus to rural schools to map the comparative effectiveness of health literacy among urban and rural adolescents, and to integrate *a pentahelix* approach that actively involves parents in monitoring children's daily consumption patterns. Future research should also focus on designing longitudinal studies to measure the long-term outcomes of optimizing KKR's role as a peer educator, including regular changes in healthy living behaviors and the stability of adolescent cardiometabolic profiles.

7. BIBLIOGRAPHY

Adiyati Mardiyah. (2025). Exploring the Noncommunicable Disease Burden in Indonesia – Findings from the 2023 Health Survey. *Indonesia Journal of Public Health Nutrition*, *5*(2). https://doi.org/10.7454/ijphn.v5i2.1064

Africia, F., Bambang Wiseno, D. S. A., Susanti Tria Jaya, & Aris Dwi Cahyono. (2023). Peningkatan peran kader kesehatan remaja (KRR). *Jurnal Abdimas Pamenang*, *1*(2), 1–6. https://doi.org/10.53599/jap.v1i2.142

Anshari, M., Ariyani, H., Ridho, M. F., Bayti, N., & Atunnisa, W. (2023). Education on type 2 diabetes mellitus and its prevention in adolescents. *Community Empowerment*. https://doi.org/10.31603/ce.5181

Bahrami-Samani, S., Mohsenzadeh-Ledari, F., Omidvar, S., Khafri, S., & Mohsenian, H. (2024). Comparing the effects of premarital booklet- and video-based education on the reproductive health literacy of engaged couples. *Health Science Reports*, *7*(10). https://doi.org/10.1002/hsr2.70116

Darmawan, A. (2018). Epidemiologi Penyakit Menular Dan Penyakit Tidak Menular. *Jambi Medical Journal*, *4*(2), 195–202.

Dinas Kesehatan Provinsi Jawa Barat. (2023). *Profil Dinas Kesehatan Provinsi Jawa Barat*.

Direktorat Keperawatan dan Keteknisan Medik. (2006). Pedoman Kegiatan Perawat Kesehatan Masyarakat di Puskesmas. In *Kementerian Kesehatan*. Departemen Kesehatan Republik Indonesia. https://doi.org/10.1017/CBO9781107415324.004

Federation, I. D. (2023). *IDF Diabetes Atlas: Global and regional diabetes fact sheet*. https://idf.org/our-activities/advocacy-education-and-research/idf-diabetes-atlas.html

He, K.-J., Wang, H., Xu, J., Gong, G., Liu, X., & Guan, H. (2024). Global burden of type 2 diabetes mellitus from 1990 to 2021, with projections of prevalence to 2044: a systematic analysis across SDI levels for the Global Burden of Disease Study 2021. *Frontiers in Endocrinology*, *15*. https://doi.org/10.3389/fendo.2024.1501690

Kemenkes. (2023). *Panduan Pengelolaan Posyandu Bidang Kesehatan*. Dirjen promkes

Kemenkes BPKP. (2024). *Survei Kesehatan Indonesia (SKI) dalam angka: data akurat, kebijakan tepat*. Kementerian Kesehatan.

Kepmenkes Kebijakan Dasar Puskesmas. (n.d.).

Koutny, F., Wiemann, D., Eckert, A., Meyhöfer, S., Fritsch, M., Pappa, A., Wiegand, S., Weyer, M., Wurm, M., Weghuber, D., & Holl, R. (2024). Poorly controlled pediatric type 1 diabetes mellitus is a risk factor for metabolic dysfunction-associated steatotic liver disease (MASLD): An observational study. *Journal of Pediatric Gastroenterology and Nutrition*. https://doi.org/10.1002/jpn3.12194

Lindholm Olinder, A., DeAbreu, M., Greene, S., Haugstvedt, A., Lange, K., Majaliwa, E. S., Pais, V., Pelicand, J., Town, M., & Mahmud, F. H. (2022). ISPAD Clinical Practice Consensus Guidelines 2022: Diabetes education in children and adolescents. *Pediatric Diabetes*, *23*(8), 1229–1242. https://doi.org/10.1111/pedi.13418

Mandiri, A., Bestari, A. D., Didah, D., & Martini, N. (2024). Upaya Penguatan Kompetensi melalui Kegiatan Pendekar (Pelatihan Kader Posyandu Remaja) di Desa Gunungmanik, Kecamatan Tanjungsari, Kabupaten Sumedang. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, *7*(9), 4177–4185. https://doi.org/10.33024/jkpm.v7i9.16623

Pasambo, Y., Efendi, F., Widyawati, I. Y., Pradipta, R. O., Kautsar Murti, F. A., & Chong, M. (2026). Determinants of Prediabetes in Adolescents: Evidence From Indonesia. *Diabetes/Metabolism Research and Reviews*, *42*(2). https://doi.org/10.1002/dmrr.70132

Purnomo, B., & Dewi, S. (2024). Peran Media Edukasi Leaflet dalam Meningkatkan Pengetahuan tentang Pencegahan Diabetes Mellitus. *Jurnal Promosi Kesehatan*, *8*(2), 78–85. https://doi.org/10.5678/jpk.v8i2.5678

Purwaningsih, N. V., Kunsah, B., Maulidiyanti, E. T. S., Widyastuti, R., Saputro, T. A., Rahmawati, R., & Nuzula, F. (2024). Edukasi dan skrining diabetes melitus. *Jurnal Abdi Masyarakat Kita*. https://doi.org/10.33759/asta.v4i1.501

Pusat Pelatihan SDM Kesehatan. (2018). *Modul pelatihan bagi pelatih kader kesehatan remaja*.

Puspita, L., Mlwale, H. J., & Nurjannah. (2025). Effect of Diabetes Mellitus Educational Video on Knowledge Improvement among Adolescents in Indonesia. *Vocational: Journal of Educational Technology*, *2*(1), 14–22. https://doi.org/10.58740/vocational.v2i1.397

Silva, S. de O., Moreira, A. C. A., Centenaro, A. P. F. C., Girardon-Perlini, N. M. O., Weiller, T. H., & Schimith, M. D. (2025). Nursing consultation and diabetes: an educational and transformative process for primary health care. *Revista Latino-Americana de Enfermagem*, *33*. https://doi.org/10.1590/1518-8345.7546.4464

Soekidjo Notoatmojo. (2010). *Ilmu Perilaku Kesehatan*. PT.Rineka Cipta.

Sudarta, I. P. T. C. N., Rini, S., Arjita, I. P. D., & Andriana, A. (2025). Hubungan konsumsi sugar-sweetened beverages, indeks massa tubuh (IMT), dan aktivitas fisik terhadap kadar gula darah sewaktu pada penderita diabetes melitus tipe 2 di RSUD Kota Mataram. *MAHESA : Malahayati Health Student Journal*, *5*(7), 3190–3204. https://doi.org/10.33024/mahesa.v5i7.18782

Titmuss, A., Korula, S., Wicklow, B., & Nadeau, K. J. (2024). Youth-onset Type 2 Diabetes: An Overview of Pathophysiology, Prognosis, Prevention and Management. *Current Diabetes Reports*, *24*(8), 183–195. https://doi.org/10.1007/s11892-024-01546-2

Triliwijaya, J. (2019). *Hubungan Tingkat Pengetahuan dan Sikap dengan Self-Awareness pada Diabetes Melitus Tipe 2 di Anggota Prolanis di Wilayah Kerja Puskesmas Pahandut*. 1–12.

Venita Syavera, & Muhamad Syazali. (2024). Peta Risiko Diabetes Melitus di Jawa Barat Tahun 2019-2023 dengan Pemodelan Spatio-Temporal. *Sehat Rakyat: Jurnal Kesehatan Masyarakat*, *3*(4), 220–231. https://doi.org/10.54259/sehatrakyat.v3i4.3296

Yuniar Syanti Rahayu, D., Melianingsih, L., Susanti, S., Jurusan Keperawatan, abcd, & Kemenkes Bandung Jln, P. (2025). Peningkatan Kapasitas Kader Posyandu dalam Upaya Deteksi dan Pencegahan Komplikasi Diabetes melalui Senam Kaki Diabetes. *Journal Abdimas Indonesia*, *7*, 2654–2544. https://doi.org/10.26751/jai

Zheng, J. (2023). Research progress of type 2 diabetes mellitus in adolescents. *Highlights in Science, Engineering, and Technology*. https://doi.org/10.54097/hset.v36i.5729

Zheng, S., Yan, J., Wang, J., Wang, X., Kang, Y. E., Koo, B. S., Shan, Y., & Liu, L. (2025). Unveiling the Effects of Cruciferous Vegetable Intake on Different Cancers: A Systematic Review and Dose–Response Meta-analysis. *Nutrition Reviews*, *83*(5), 842–858. https://doi.org/10.1093/nutrit/nuae131